The Builder.

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Originality versus *Evolution in Architecture.*

IF there is any maxim which seems at the present time to have gained firm establishment with the expositors of the ascertained results of scientific and historical investigation, and with the boldest propounders of theories of further advance, it is that there is no hope for extensive acceptation of what they have best to say, apart from the term evolution. The conviction, indeed, sometimes steals upon us that opportunities for such repetition have to be brought round and contrived, when they do not offer themselves spontaneously. "The excellent good word" Evolution, in fact, is in some danger of becoming a mere password or badge of party. It is not among the students of architecture that a reasonable theory of evolution will be undervalued or unrecognised, and they, if any, will be prepared to resent and regret that its useful technicalities of expression should degenerate into cant. The archives of architecture are unrivalled in richness and profusion among those of all the arts. These archives are its monuments which are preserved to us, in reality as well as in record, in succession almost unbroken from the very commencement of written history through century after century; and even when written history fails us, monuments which testify to their own relative, though undeterminate, dates, provide no scanty materials for a history reaching back again far towards the very commencement of civilised society. Nothing can be clearer to the student of this marvellous series of the productions of human labour, perseverance, skill, knowledge, and imagination, than the intimate dependence of the works of each new epoch on those that have gone before. In comparison with the transitions by which the architecture of Henry VII.'s Chapel affiliates to the templar architecture of the Greeks, even "the pedigree of the horse," as propounded by the president of the Royal Society as a certified example of the evolution of species, is a collection of loose and of unmatched links indeed.

The student of art, however, has no need to insist on a comparison with the philosophers which, if pressed too hardly, might seem invidious or unkind. "Development," his old word, serves his purpose well enough, without trespassing upon the formula of evolution, which makes some pretensions that are likely to be encumbrances. In tracing the development of art we are, at least, not grudged the assumption of conscious intelligence as a factor in place of mere blind differentiation and integration. Not only is the suggestiveness of new circumstances an original and novel element, but still more distinctly original is that exercise of inventive power for which old English good sense had a name in the good old English word,—mother-wit. After we have allowed for everything else, and taken account of all natural external suggestions and traditions, this power still asserts its independence and over-ruling importance. Among all other factors it is the manipulating factor. Manipulation has to do what it can with available materials, and will often have to groan under the restraint of their intractable constitution; but what it succeeds in doing that is of most value will not, when true mother-wit is in question, be found to have been deducible as a natural consequence from the nature of the materials, the circumstances of the case, or the action of the average intelligence of commonplace humanity.

Origination is, in fact, very truly and very extensively antithetical to evolution, unless an illicit extension is given to the latter term, which would involve a contradiction. It is impossible to withhold from entering a protest when it is assumed by the rigid evolutionist that even the simple suggestiveness of circumstances must have lost all power of primary origination after a single exertion, and died out once for all, and that future ages were left to the resources of simple imitation. Yet this seems frequently to be taken for granted, and here is an example. The bronze swords, of which specimens are exhibited in the British Museum, are found with what has been called a bulging curvature towards the point,—the leaf-shaped swords of the archæologists. This form we are instructed to regard in them as a mere imitation of the earlier hammered bronze spear-head, which, in turn, owed its form to imitation of the earlier chipped flint-points. But why need the form of the spear-head be explained by imitation? There would be reason for this if it exhibited peculiarities inappropriate for its purpose, though suitable for some earlier weapon. The pointed form, at least, must be accepted as under no obligation to an earlier hint that it would assist the purpose of penetration. The widened form of the blade as naturally expresses a design independent of any tradition to widen the inflicted wound, and the leaf-shape is completed by the narrowing required in order to attach the head of the spear to the wooden lance. The same suggestiveness of purpose would account for the independent origination of any number of localities of the leaf-shaped sword as a stabbing weapon, which it certainly was; and, even had it been pointless, this bulging curvature was precisely suited to assist effective cutting power, which was not required of the spear in any shape.

Now the case is precisely the same in architectural development. The dependence of an architectural type upon an antecedent example is only to be certified by agreement in details which are not the necessary, or may not be the natural, suggestions of purpose and occasion; in the case of a noble architectural type, such evolved or derivative details are trivial elements in comparison with the metamorphic power of true architectural genius. We do not assume that the door of a Greek house or temple was due to evolution of a primitive or foreign type. There was no need for a traveller to have visited the banks of the Nile before a wooden post was employed to support an architrave, before a rough post was squared, or before the awkward angles of a square post were chamfered. The philosophy of the case so far is fully supplied to us by Touchstone: "The heathen philosopher, when he had a desire to eat a grape, would open his lips when he put it into his mouth; meaning thereby that grapes were made to eat and lips to open." The same philosopher covered his head against the sun and his house against rain, and had only the sun and the rain to thank, and not a hint from his ancestors for either precaution.

It is with no desire to under-rate or detract from the splendid archæological services of Dr. Schliemann, that we take from his last book, "Troja," an illustration of these fallacies; but because we are invited thereby to an analysis of the true function and appropriate characteristics of the *anta*, and its relation to the pilaster.

Among the discoveries which rewarded a final and systematic exploration of the Hill of Hissarlik, very interesting was the identification of the lower walls of two oblong buildings which in proportions, plan, and juxta-position have a remarkable agreement with temples of the Hellenes, and were very probably temples. These walls were of crude brick, burned *in situ* after erection; the ends of the side walls were advanced, as if to embrace a sort of portico or pronaos, and the precarious material was protected by being faced with solid jambs of upright timbers, six to the thickness of a wall of nearly 5 ft. The same system was applied to advanced walls of a gate of the city or acropolis. The interpretation of the function of these given by Dr. Schliemann's architects is doubtless correct: these ancient wooden

parastades had two important constructive purposes, "for they served both to consolidate and secure the front faces of the lateral walls, and to render them capable of supporting the ponderous weight of the superincumbent cross-beams and terraced roof" (p. 279).

We must demur, however, when invited to assume as "a new and striking fact in architectural history, that the upright jambs now first found at Troy were the true constructive origin of the antæ or *parastades*, which serve only an ornamental purpose in the Greek temple; that, in fact, the antæ of later ages were nothing else than a reminiscence or survival of these ancient wooden *parastades*." The suggestion is quite as wild as that "the timber architrave is the long recognised original of the stone architrave of a Greek portico. In neither case is there any more need for leaning upon a theory of survival or reminiscence than as between the modern shoe and the ancient sandal, or than Touchstone had for looking out precedents in the practice of ancient philosophers when he had a mind to eat a grape.

If we are to understand the true meaning and function of an anta, we shall do better to dismiss all such speculations, and concentrate attention on the natural suggestiveness of the architectural member under special conditions of construction.

The problem of the appropriate treatment of a wall at its termination comes up in two chief forms, accordingly as the wall is returned at a right angle, or stands as an advanced end. In either case, whether of short termination or of transition, there is the same reason for some distinctive treatment, as there is for an expressive indication of the conclusion of a musical phrase. Some observations have already been made in the *Builder* as to the unhappy weakness of effect which is due to the customary system of closing courses of brickwork at an angle; and there is the same liability with masonry. The marble masonry of the Greek temples exposed only stretchers. This was the case on both sides, even when the wall exceeded the thickness of the blocks; transverse blocks being then countersunk, to secure interior bond, and any interval was filled with coarser stone. But the end-face of the wall had to be completed, and could be completed most appropriately, with blocks equal to its full breadth, which might not exceed the length of the ordinary blocks. These, however, it is clear, could only be finished laterally by half blocks in alternate courses, thus introducing a suggestion of weakened construction at the very point of chief liability to injury. The suggestion might be a mere suggestion; but it is a detrimental suggestion, nevertheless; the mere hint of awkwardness, however vague, offends a fine sensibility. The angles of houses in London squares are, no doubt, as strong, and visibly so, as when they were first built, even where the proportions of the bricks certify to a date anterior to the form enforced by taxation; but the suggestion of indifference, if not to real weakness, to our being reminded of it, is not the less a disturbance of true artistic repose that were well spared. True refinement is as much dependent on art as in manners on observances of delicate suggestiveness. They are the very soul of courtesies which have the same sanctions that so seriously regulate the graces of existence by attaching rational significance and even a moral motive to the removal of a hat or a glove. The Greek architect, building in marble, was careful to preclude the suggestion of weakness at a point where the Trojan had real weakness to contend with; and he so treated the end of his wall as to signify that it was deliberately concluded, not stopped abruptly. It would have helped in no degree to have shown his wall as abutting against a pier; the expression most required of tie and bond would then lose rather than gain. He effected his purpose by an advanced vertical member, but advanced by so slight an offset from the general face of the wall that it was effectually restrained from asserting its independence of the wall. It appeared naturally developed from it, not applied to it. It was open to the architect in consistent adherence to this principle to make, originally at least, the vertical line of the offset coincident with the joints of the half or of the entire blocks, and thus to provide an accentuated stop for the prolonged courses of his masonry by an upright of either a broad or a narrow face.

The free end of a flank wall was, in many cases, regulated in breadth by a certain relation to the mass of the column of the porticos in front of it; and, by the same rule, the breadth of the anta was governed on one side by the responsibility to the architrave of the pronaos column. At the eastern end of the Theseum, the architrave of the pronaos which supports a sculptured frieze is continued clear across the lateral peristyle; and the lateral face of the anta is, therefore, also broad. Such is uniformly the case with both fronts of the Ionic temples of Asia Minor, where the ends of the flank walls range exactly with columns on the flanks. It is otherwise at the west of the Theseum. The termination of the flank wall is here seen through the intercolumn, and it is, in consequence, found sufficient to allow the anta a narrow face, as in the Erechtheum, and most usually in other temples which are destitute of peristyles.

The anta was further retained in dependence on the wall, by the capital which it required in necessary response to that of the column from which it received beam or architrave, being harmonised with it by contrast rather than resemblance; then by the upper wall mouldings running on to form an important part of its capital, and by the moulding at the foot of the wall being continued to form its base.

Nothing, therefore, can be more false in principle than the current definition of an anta or anta pilaster as "a certain description of pilaster attached to a wall." It is the primary fault and opprobrium of the pilaster of the Romans and the Renaissance, that it declares itself as an artificial adjunct, as applied to a wall. Pope, whose taste was certainly here in advance of his friend, Lord Burlington, recognised the incongruity in his satire on unintelligent architectural composition,—

> "Then stick four slices of pilaster on't,
> Which, laced with bits of rustic, make a front."

"Stuck on" is what pilasters for the most part appear, but the objection is never chargeable on the Greek anta. The Greek architect of the Erechtheum set the world an example of varied treatment of the anta with effect and appropriateness. We find it with a narrow return upon the flanks accepting the same rich mouldings which crown the wall below the architrave. In the north portico the capitals, in like manner, unite with the stringcourse above the doorway, and the profile of the bases is continued as a moulding along the foot of the wall. The end of the projecting wall, which forms the back of the north portico, has a beautiful compound section with returned mouldings; and still another combination is exhibited at the south-western angle of the temple to unite the flank wall with that of the engaged portico.

It would be difficult, however, to discover traces of the reception of the instructive lesson in latter Classic architecture. The Romans substituted the pilaster for the anta, and, for the most part, neglected the engaged and responsible column, for the column standing free in front of the wall, however close to it,—or if engaged, only exhibiting a fictitious relation to epistylia that were constructively independent of it. Progressive degradation, instead of evolution by the survival of the fittest, leads us at last to Diocletian's palace at Spalatro. Here we are at the summit-line of divided architectural watershed, between ancient and Mediæval Europe. In the Golden Gateway we have pilasters "stuck" against the wall, and Corinthian columns on brackets in front of it, while in the courtyard corrupt tradition is frankly broken with, and archivolts spring directly from the capitals of a colonnade. Centuries, however, had still to pass on before the united common sense, mother-wit, and genius of the Mediæval architect designed piers which did not have the effect of solid cores with slices of pilasters attached to them, and clustered columns which declared themselves to be clusters, not aggregations; and majestic architecture again assumed that semblance of true organism which enables us to pass to it from the contemplation of the noblest works of nature with a sense that we are still not remote from the agency of creative power.

WHERE TO TURN.

THE fresh editions, called for from time to time, of Molesworth and Hurst, show that the new generation, which has grown up since the first was started, also provides itself liberally with those helps to memory. Messrs. Spon are also the publishers of a pocket-book,—that is, a little book 4¾ in. long by 3 in. by ¾ in.,—which they call "Spon's"; and the eleventh edition of this is now before us.* About half of it is a price-book on a small scale, and the other half consists of useful memoranda about things in general. The memoranda are placed alphabetically, — hoop iron is followed by inaccessible heights, and piers by pillars. Molesworth, — aiming mainly at civil and mechanical engineers,—has formulæ and notes bearing on railways and roads, docks, canals, mill-work, water-power, and windmills. These find no place in Hurst, which is called an architectural surveyor's handbook. The measurement of builders' work, constants of labour, valuation of property, are treated at more length than they are in Spon's. Its speciality consists, as we have said, in builders' prices and memoranda of a general kind for people engaged in ordinary building. Earthwork, brickwork, masonry, arches, trusses, columns, beams, and other such common things, necessarily come into every book of the sort, and about the same statements must be made with respect to them. Mr. Hurst's "Engineers' Tables," 2¾ in. by 1¾ in., for instance, cover a good deal of the same ground, and its 140 tiny pages of small print are consequently found suited to waistcoat pockets which are decently capacious. In Spon's there are signs of diligent revision which leave a pleasant impression; the editor is a practising architect, well known to all the world as the winner of the Glasgow Municipal Buildings competition. We have no fault-finding to do, but as suggestions are requested we will make one or two.

The rainfall per annum is given (p. 130) for Glasgow and some other important centres, but London is left out; in such tables it should be stated whether the depth given fell in the year before the publication, or is an average of some number of years. The latter would be the more useful. In 1882 the rainfall at Guildhall was 21·70 in., falling on 132 days; at Camden-square 27·10 in. fell on 165 days; in 1883, at Guildhall 19·84 in., and at Camden-square 24·40 in. The statement (p. 20), "Bricks absorb about one-fifteenth of their weight in water," may be true in several senses. A fair stock brick, weighing a little over 5 lb. when dry, will absorb about half a pint of water if it is immersed for some hours. If such a brick contains 96 cubic inches, 1-7th of its bulk has been absorbed, or 1-10th of its weight. Bricks without a fair power of absorption do not make good work. A very porous Bedfordshire brick, tested some years ago, absorbed 1-8th of the weight of the dry brick,—1-5th of the bulk. The bricks were made for the owner of the proposed buildings in his own brickfield. Those previously made with rather less care had a good repntation for lasting, although a poor one for keeping out wet. Built with 2½ in. cavities,—a dry house, and one likely to last long, was erected. The test by absorption is a rough one, as the sizes of the internal cavities will vary; and out of a number of trials no rule has yet been constructed by which bricks for solid walls should be accepted or rejected.

The ordinary table giving the number of pieces of paperhangings required for a room, by means of the measurement round the walls and the height from skirting to cornice, might

* "Spon's Architects' and Builders' Pocket Book of useful Memoranda and Prices." By W. Young, architect, author of "Picturesque Architectural Studies," "Town and Country Mansions," &c. Eleventh edition. E. & F. N. Spon, London and New York.

find a place. It is useful in checking, though too liberal, if doors and windows have been scattered about with much freedom. Instead of the weight of lead pipes (p. 228) being stated as "light, middling, and strong,"—a list of weights kept in stock by some good manufacturer would be more useful. There must be "light, middling, and strong" among all pipes,—that goes without saying; but it is in practice a capricious classification; ¾ in. and 1 in. lead pipes are commonly kept in stock in eight different strengths. In Spon's we have :—

	Light.	Middling.	Strong.
1-in. pipe, p. 126	2·4	2·8	3·33
And again at p. 228	2·0	2·6	2·8

No better illustration could be given of the difficulty. Drawn lead-pipes are sold by manufacturers in coils of 60 ft. up to 1¼ in.; 30 ft. thence to 2½ in.; and larger than 2½ in. in 10 ft. lengths. Pipes which must be bent a good deal, especially in short bends, are none the better for being heavy. The size of a pipe is generally understood as the clear bore, unless otherwise described; cast-iron down-pipes, however, are frequently made so that the bore and one thickness of metal will give their recognised diameter; brass threads for gas are always measured externally.

The regulations of water companies vary. The New River Company stipulates that each communication pipe,—that is, the pipe for communication between the company's pipe and the premises to be served,—shall be of the following strength :—⅜ in. internal diameter, 5 lb. per lineal yard; ½ in., 6 lb.; ⅝ in., 7½ lb.; ¾ in. 9 lb.; 1 in., 12 lb.; 1¼ in., 16 lb. But the minimum weights of warning pipes and other lead pipes having open ends may be as low as ½ in. 3 lb. per lineal yard; ¾ in., 5 lb.; 1 in., 7 lb.; 1¼ in. 9 lb. Coils of pipe are charged for, not by the nominal weights, but after actual weighing immediately before being sent out. We cannot in the present state of things agree with the note on page 234,—"zinc gauge should be specified." It is far better to specify the weight per foot. No. 14 gauge is given as 21¾ oz. per foot, as against 18¾ oz. in the present lists of the Vieille Montagne Co., and No. 15 as 24 oz. against 21¾ oz. The "new tariff" is about one gauge lighter than the one before it; and judging by the past, there may possibly be further changes in store for us. In olden days No. 14 was 24 oz., and No. 15, 26 oz. to the foot.

The memoranda as to Cuban brickwork (p. 417), and the unpriced schedule as to Maninghen stone (p. 284) seem astray. There is a vagueness about bushels, and common weights and measures generally, in too many pocket-books: the thing to keep in prominence about the bushel is that it is 2218·192 cubic inches, or about 1¼ cubic foot. Thus, for instance, the statement on page 123, "21 bushels of sand=1 yard," might lead to misconception if the reader were ignorant, permanently or temporarily, of the nature of a bushel. The statement is equally true of the gray and blue lias limes, cements, &c., which are hovering round. We are not fond of the rule as to light on page 94,—"the superficial area of window should equal the square root of the cubical space in the room." Take a room 14 ft. by 14 ft. by 10 ft.=1,960 cubic feet. The square root of this is 44,—or window glass 7 ft. high by 6 ft. 3 in. wide, which is absurd. Mr. Young notes that "this rule is not universal in its application"; neither is any other which the world has seen yet. The best way yet found out of finally determining on lighting area is for a practised architect to feel satisfied with it as designed. The rule which hangs about in oral tradition,—divide the cubical space in the room by 80, and this may be the glass area,—is attributed to a shrewd and successful house-builder of the last generation; and his rule gives a better result in the case which we have suggested,—that is, it works out at 24½ superficial feet of glass, or 7 ft. by 3 ft. 6 in., which would be about right under ordinary circumstances. A number of other points had been noted for remark, but we will make no more suggestions in this vein,—lest the enemy take occasion to blaspheme; besides, the editor of any pocket memorandum-book may fairly cry out that the line must be drawn somewhere, or what should be a booklet will require a very special pocket.

The same class of remark might be made b the Editor of "Laxton's Price Book,"* and contrasts drawn between the edition of 1884 and those of previous years. The 1851 edition happens to be the earliest at hand at the moment; it contained about 250 pages. In this year's edition there are 510 pages of text and 115 of indexes, trade advertisements, &c.; that is to say, there was a youthful slimness in 1851, when 8,000 prices were dealt with; in 1863 there were 30,000, contrasting with the portly volume for the present year, which contains 72,000.

The vanished years come back vividly in recollections as the pages of the old edition,—"by W. Laxton, Architect and Civil Engineer,"—are turned over. Of the present district surveyors, less than twenty then held office, out of between sixty and seventy. The power of appointment was with the magistrates under the Act of 1844; the existing Act was passed in 1855, and the Metropolitan Board of Works has thus made the appointments for nearly thirty years. In the old Act "the said Lord Mayor and Alderman and the Justices are required, but subject, nevertheless, to the consent of one of her Majesty's principal Secretaries of State, to nominate and appoint as surveyors such discreet persons of the full age of thirty years, and properly educated and skilled in the art and practice of building, as they shall think fit." The 1774 Act, which, early in the forties, was written of as "in so many respects a mass of absurdity that it ought long since to have been repealed," is responsible (sec. 62) for the genial phrases in which suitable officials were described in 1844. They are simply "qualified persons" in the present Act. The father of the district surveyors, as he is affectionately called,—Mr. Edmund Woodthorpe,—was appointed to Limehouse, &c., in 1839, and to the Northern Division of the City of London in 1853, both before the revolution.

In Laxton the treatment of the Metropolitan Building Act, with an appendix of unrepealed sections of the old Act, decisions on the Act in the Superior Courts, full index, list of districts, the 1878 Act, the Board's By-laws,—has always been very liberal; and the general information is that of a good handbook. Stating prices is, however, the main purpose; and it is done with diligence. There is a good modern tone; drains and sewers and sanitary work are treated under separate headings; grease-traps, flushing-tanks, telephones, electric lighting, and the like appear in their proper places.

Comparing the prices put in price-books at different dates upon the finished work of the builder,—the future antiquary will conclude that there was a serious rise all round during the last quarter of a century. He will observe the wages rate charged by masters for artisans increased from 5s. 6d., 5s. 9d., and 6s. per day, to 7s. 11d., 8s. 4d., and 8s. 9d., and that labourers were charged for at 5s. 5d. or 5s. 10d., against 3s. 9d. or 4s.; that is a rise of about half as much again as the original rate. He will observe that a good number of labour prices are swelled in something like that proportion, but that the prices put upon the finished articles are swollen further by additions on the master's prices of materials; noting Thames ballast at 7s. 6d. a yard against 4s. 6d.; stock bricks, 36s. against 30s.; lime, 16s. a yard, against 11s. 6d.; Thames sand, 8s. a yard, against 5s. 9d.; fir timber about 19*l.* per Petersburg standard, or 2s. 3½d. per cubic foot, as against 15*l.* 10s. per standard, or 1s. 10d. per cubic foot; York stone in blocks, 3s. to 3s. 3d., against 2s. 2d., &c. Building costs a good deal more money than it used to do, and the inventor who would make it cost less, otherwise than by the old-fashioned expedient of crowding more hours of work for the same payment into a man's day,—would deserve well of us all.

As a good illustration of the difficulties with which those who dip into a price-book occasionally have to contend, as also of Mr. Young's remark (p. 235), that "as the prices of materials are constantly varying, it will be prudent to get special quotations for large contracts,' we will group together some statements as to leadwork from Spon's Pocket-book, Laxton's Price Book, and Lockwood's,* an intelligent and serviceable guide, revised and edited by Mr. Francis T. W. Miller, A.R.I.B.A., &c. :—

	Spon's.	Laxton's.	Lockwood's.
	s.	s.	s.
Milled lead, in sheets, per cwt.	27	18	20
,, cut to sizes... ,,	29	20	23
,, laid in gutters or flats ... ,,	32	25	25
,, in flashings... ,,	33	27	26

Taking 14s. per cwt.,—somewhat over the current price at the present time paid to manufacturers for milled lead in sheets delivered in London, adding 6s. per cwt. for labour and solder, we arrive at 20s.; and 20 per cent. profit will bring it up to 24s. per cwt. for lead laid in gutters and flats. The differences in the prices,—looking considerable at the first glance,—are in reality very small,—the greater part is due to the first cost of material. It would depend upon the size and situation of the work whether any one of the varying amounts for labour was, or was not, a reasonable one.

Unverified constants of labour are dangerous weapons in hands which have not proved themselves in their use well beforehand. For instance, in a recently-published book, the constant for deal sash-frames and 2-inch sashes double hung works out at ·148,—say one-seventh of the day of a joiner for labour and nails,—that is, for the workman's time, glue, requisite services of a labourer, and master's profit. No compiler can undertake to originate or test minutely *everything* which he inserts in his compilation; even his laborious life might prove too short for that. Counsels of perfection apart, he will generally feel that he has done his duty pretty fairly when he has made a correct extract, from an authority who has generally been looked upon as trustworthy. The constant mentioned has, however, been the subject of a revision. In both the Ryde and the Dobson of about thirty years ago the same service works out at ·166, say one-sixth of the day of a joiner. Reckoning the master's price at the present time at 10½d. per hour, or 8s. 9d. per day of ten hours, one-seventh of a day will give 1s. 3d. for the work priced by Laxton at 10d., and Lockwood at 8½d. The moral usually pointed is that price-books, lists of constants of labour, memoranda, and, generally, all compilations which state results, and by the nature of the case cannot lay bare the processes by which the results have been arrived at, and all the circumstances which make one thing true one day and another on another, need special practice if they are not to mislead. Some people, who are very anxious to make everything clear, would hasten to add that the same thing may be said of almost any mystery, and they draw two deductions from their premises. One is that their friends who have little or no acquaintance with any technical matter will, if truly wise, leave it wholly from first to last in the hands of an expert. The other deduction is that a slight acquaintance with doubts, difficulties, and confusion should, after a properly-bought experience, lead to the same result.

The advertisements interleaved in the index, which erewhile worried us, are very properly absent, there being little more "prominence" in either Price Book than in the *Times* or the *Builder*. A contractor for bill-posting feels himself justified at the present time in paying a larger rental for the use of a huge hoarding in a prominent London thoroughfare, than the building site which the hoarding hides is at all likely to produce when let on a building lease. So stern and ruthless is the general onward progress that the dread of finding the virtues of mustard, dog-biscuits, or water-waste preventers inserted at the critical pages of third volumes seems fairly to hang in the air. Any sign of halting is, therefore, very welcome.

* "Laxton's Builders' Price Book for 1884." Sixty-seventh edition. Kelly & Co.

* "Lockwood's Builders' and Contractors' Price Book for 1884." Crosby Lockwood & Co.

THE LATE DUKE OF ALBANY.

THE lamented and unexpected death of H.R.H. the Duke of Albany has already been the occasion for so full an expression of public regret and sympathy through the columns of the daily press, that any addition to that expression which we can make at this date must come with greatly diminished emphasis, and can only seem a repetition of what has been in every one's mouth already. We may, however, observe that there are one or two facts among the records of his life which connect him with some of the work and some of the interests which it is our duty to endeavour to forward. In addition to the various branches of study in which, as we know, the Duke of Albany interested himself, he was also active in endeavouring to promote the improvement and beautifying of the poorer districts of London, and took a prominent part in the work of the Kyrle Society, the objects and achievements of which we commented on in a Note last week, interesting himself personally in schemes for the laying out of gardens and decoration of hospitals and other buildings.

The Duke of Albany was also an Honorary Fellow of the Royal Institute of British Architects, and President of the Parkes Museum of Hygiene. In the latter capacity he presided, less than a year ago, over the proceedings connected with the opening of the new Museum in Margaret-street, and made a thoughtful speech (which will be found reported in our number for June 2, 1883) on the aims and objects of the founders of the Museum. "Our endeavour," he said, "will be to make the Parkes Museum in every way worthy of the man whose name it bears. To do this we look for the ungrudging and cordial support of all who are interested in sanitary progress." We are sorry to say that recent accounts to hand show that this appeal has not met with anything like so adequate a response as could be wished.

These brief notes we may the more suitably make, as the facts to which they relate have not, as far as we have observed, been commented upon among the various notices that have appeared of a life which seems to have shown unusual tendency towards the pursuit, so far as health and circumstances allowed, of good and worthy objects.

NOTES.

WE give, in another place, the names of the authors of the nine designs which have been selected by the committee appointed to examine the drawings sent in for the first competition for the new Admiralty and War Offices. The committee cannot be accused of being dilatory in the discharge of their functions; on the contrary, we can only express a hope that the conclusion come to in so short a period, over the merits of such a number of designs as were known to have been sent in, has not been based on too hasty an examination. The result seems to confirm the views which have sometimes been advanced in favour of the competition system, as a means of bringing into prominence unknown merit; and even in regard to those in the list whose abilities are well known, it will certainly be considered matter for surprise that not a single one among those who rank as the leading architects of the day is included in the list. This very unexpected result certainly tends to emphasise the feeling which many persons already entertain, that in common justice to the unsuccessful competitors, the first competition designs should be exhibited publicly, both that those who have toiled for nothing may at least have the advantage of public exhibition, and that we may have some chance of understanding how all our leading architects come to be out of the running; unless indeed they have all had wisdom granted them from above to shun the snare. There is another point the authorities certainly ought to reconsider; the time allowed for the complete drawings. A committee may find it easy to go with a light heart through several hundred drawings, but the two architects on the committee ought to know very well, if their colleagues do not, that a complete set of plans for such a building cannot be devised, thought out, and executed by the 24th of June (the date fixed) without either painful overwork or hasty and incomplete thought and execution. The time ought to be extended, if justice is to be done to the building and to the architects.

AT a meeting of the General Committee for the selection of a cathedral site, held in the Council Chamber of the Liverpool Town Hall on Tuesday last, the Bishop of Liverpool presiding, the adoption of what is called the St. John's Church site, at the back of St. George's Hall, was carried by 41 votes against 30. Reading carefully through the detailed report of the arguments *pro* and *con.*, as given in the Liverpool *Daily Post*, we are disposed to think that this was the best practicable decision that could have been come to. On purely architectural grounds, indeed, the site by the river, on the space at present occupied by the George's dock basin, would have been magnificent, and would have given such an opportunity for effect as has but seldom been afforded in the history of architecture; but it is stated that the land, if the dock basin is filled up, is likely to be wanted for other purposes. The other sites proposed are all deficient in significance and centrality, practical and æsthetic. The site adopted is somewhat confined, but it is in the midst of what is now the architectural centre of the city; it stands on rising ground with considerable opportunity for effective *emplacement;* and it is more central for access than most of the other sites that have been suggested. Its possible effect on St. George's Hall is, however, a more important point than some speakers at the meeting realised. The back elevation of the hall was denounced as "a sham," the obscuration of which was of no consequence. The whole design of the hall is a sham, if we come to that, but the back elevation is a most interesting and, as far as we remember, unique attempt to translate a certain form of Egyptian architecture into Greek language; to an architect it is about the most interesting part of Elmes's design, considered simply *quâ* design. The suggested arrangement of the cathedral site, published in the *Daily Post*, is by no means to be recommended; it does not suit the shape of the site, and fritters away some of its capabilities by getting the cathedral up on to terraces and bridges. Let them try, as the idea of St. Paul's is evidently rather predominant, a version of Wren's earlier Greek cross plan, filling the space much more evenly, and with a grand unbroken flight of steps rising from the lower levels to the façade of the building. Nothing that can be done, in the space, could surpass that for effectiveness. There seem to be whispers of the adoption of a Classic style for the cathedral. If this were really a powerful and original treatment of Classic *motifs*, not a parroting of Wren details (many of which are as bad as can be), the experiment would be well worth making, and might result in a building more expressive of the spirit of modern Christianity than any Mediævalised structure could be.

WE print elsewhere a characteristic correspondence between the Society for the Protection of Ancient Buildings and Mr. H. H. Gibbs, who is supplying the funds for the restoration of the altar-screen at St. Alban's Cathedral. As usual, the Society contrive to appear as a body whose motives are right and their reasoning and logic as wrong-headed and ridiculous as anything can be. As usual, they commence with a moderate statement of their views and a studied courtesy, and when that does not bring them the assurances they require, they relapse into impertinence and extravagant assertions and misrepresentations. This kind of procedure appears to be part of the policy of the Society, and would, in our opinion, justify any person who receives a first letter from them in declining any reply in future. The assertion that there is no interest in any modern sculpture, and that the Mediæval school of sculpture was one capable, "by its meanest members," of executing "infinitely better work" than any that has been seen in modern times, is a happy example of the tone of supercilious ineptitude which characterises the effusions of the Society. We may add that we have reason to believe that the restoration of the altar-screen is in good artistic hands, and will at all events turn out a very different stamp of work from that which irresponsible Vandalism has affixed to the front of the cathedral.

THE Ninth Report of the Historical Manuscripts Commission has been issued, and contains a great deal of matter that is likely to interest the antiquary and the architect. Mr. H. Maxwell Lyte,—to whose competent hands the task of examining the muniments of the Chapter of St. Paul's was entrusted,—has met with several curious examples of early conveyances, valuable not only on account of their phraseology, but also for the light they throw upon the topography of the City of London as far back as the twelfth century. The greater part of the collection had never been previously examined for literary or historical purposes, and a number of ancient documents were quite recently discovered by Dr. Stubbs and his sons in a long-neglected chest found in a loft over the Chapter-house. Of course, the fabric rolls of the old and new cathedral are among the most important of the records. Some of these date back to the reign of Richard II., and from 1633 to 1749 there are comprised in fifty-five volumes, finely written on vellum, the accounts for the repair and alteration of old St. Paul's, and also for the erection of the present building. There is also a valuable series of account-books relating to the rebuilding of the parish churches of London, destroyed by the Great Fire, and to the building of "tabernacles" in which divine service was celebrated during the reconstruction of the permanent fabrics. The call-books for workmen, and the details of wages paid throughout the seventeenth and eighteenth centuries, have been preserved, and are worthy of attention. We hope to have an opportunity of noticing some of the more ancient building contracts, in which will be found many obsolete architectural terms and references to the system of building that prevailed during the Middle Ages.

WE may draw attention to the fact that the Society of Arts are offering prizes for essays on the dwellings of the poor, for which object the sum of 1,200*l.* has been generously placed at their disposal by Mr. W. Westgarth, a member of the Society. The highest prize of 500*l.* is offered for the best practical essay on the whole subject of the sanitation and reconstruction of Central London: other prizes are for the best practical essay on the rehousing of the poorest classes, and for essays on the separate subjects of engineering, architectural, and sanitary considerations. Detailed particulars may be obtained from the Secretary, to whom essays are to be sent in not later than December 31 of this year. The offer is in accordance with the enterprise and public spirit which has always distinguished the Society of Arts, and we hope it may lead to some practical result.

WE have received a communication from Mr. Lawrence Booth, architect, of Manchester, written at the request of the Committee of the Salford Union Infirmary, giving the results of an investigation made by himself and the Superintendent of the Local Fire Brigade, Mr. Willis, as to the causes of the serious fire at Hope Hospital which occurred on Saturday. The ruins of the burned structure were in a state particularly favourable for examination; the roof of the pavilion having been completely destroyed, the walls and chimney-stacks were left absolutely bare. The examination showed that great care had

been, at all events, intended in keeping all timber clear of flues. The "structural defect" which caused the fire was the result of the eccentricities of one individual brick-setter, who had left a small aperture in the wall surrounding and forming the flue from the fireplace in the first-floor ward. The ingenious bricklayer had contrived his little defect in the only six inches of height in the wall in which it would not have been visible, the walls being unplastered; and the total cost of making a perfect job at that point, instead of the "little rift" which led to a serious catastrophe, would have been something under a penny. "It is impossible," writes Mr. Booth, "to identify the culprit among the numerous artisans who were engaged on the works; but if this communication should come under his observation, or that of his fellow-workmen, it is hoped that the fact of the fearful jeopardy in which the lives of many of their less-fortunate fellow creatures have been placed by one act of carelessness, may have the effect of making them realise a keener sense of the responsibility they assume for the faithful discharge of their duties, not only to their employers, but to the community." We hope so, indeed.

In a recent number of the *Semaine des Constructeurs* (March 22nd) are some remarks under the head "*L'Architecte des Bêtes*," which deserve to be noted. Speaking especially of cow-houses, the writer observes that almost everywhere in France, and in many parts even of England, animals are housed in a manner at variance with common sense, chained up close to a wall where no fresh air is admitted for breathing. The same might be said of many stables, though of course there has been some enlightenment on this point of late years. Still, it is common enough for horses to be stabled with practically hardly any provision for ventilation, or for bringing them uncontaminated air to breathe. Yet the physiological susceptibilities of quadrupeds are essentially the same as those of men, though perhaps less delicate, and require the same sanitary principles to be applied to them.

The amount of attention paid to architectural and archæological subjects in our magazines at present is an indication of the increased public interest in such topics. The *English Illustrated Magazine* has especially favoured such subjects, and the number for the present month contains an interesting and well-illustrated article on "Charing Cross," by Mr. Austin Dobson, who is otherwise known as the writer of the best *vers de société* of the day, but who seems, like every man of genuine culture, to have varied interests. As a parallel to this, may be mentioned the article in the current number of the *Magazine of Art*, on "Sion House" (or "Syon," as the writer chooses to spell it), by Mr. Eustace Balfour, who remarks on the familiarity of the exterior of the building to Londoners taking a holiday up the Thames (a familiarity which those who undertake pulling against the ebb up "Sion Reach" are apt to find unpleasantly persistent), and thinks they may as well know more of the interior. He describes the house with the somewhat indulgent criticism of a votary of Adam-ism; and some illustrations are given, adequate in their way, but of which one at least, "The Vestibule," shows too much of the now prevalent desire to obtain effect by lights slashed all over the block with little attention to definition of form; a style which, though unquestionably showy, is not sound. In the *Antiquary* (a model periodical, in matter and make-up, for its class of subject), Mr. H. B. Wheatley comments on old Cheapside, with the reproduction of some old engravings. We may commend to Mr. Wheatley's notice the remarkable restoration of Cheapside by Mr. Brewer, published in our issue for Feb. 2 of this year.

The statement which has been so confidently made in the House of Lords, that the Duke of Wellington never sat for the now too-celebrated statue, has been as confidently contradicted by the Duke of Rutland in a letter to the *Times* a few days ago, in which he quoted documentary evidence in support of his assertion, which seems to settle the matter. It was partly on the ground that the living man had sat for the statue that we always urged that it ought not to be destroyed, and we therefore note that our grounds for this opinion have been confirmed on what appears to be absolute evidence.

THE DECORATIVE USES OF METALS.

It has become more and more a habit among the wealthy classes, in London especially, to place the decoration of their living-rooms in the hands of artists, and it is no uncommon thing to find the very ablest architects, and even Royal Academicians, designing or selecting down to the smallest articles of furniture, and arranging every tone and contrast of colour in the rooms handed over to them. We are accustomed to rooms panelled with carved oak, hung with embossed leather or tapestry, carpeted with Eastern rugs, adorned with the quaintest glass from Venice, and lacquer and ceramics from China and Japan; but, while all else harmonises to form a complete picture, the works in metal, the fenders and dogs that should glow with grace, the lamps whose shaded flame should first light their own intrinsic beauty, the window and shutter fastenings, the door-plates and hinges, whose every outline once exercised such minds perhaps as Cellini, Dürer, Memling, are now too often the creations of a hard mechanical Birmingham puncher. The lamps that depend from the very centre of a room or fill the arch of a corridor, or occupy the newel of a stair, are, especially if of the nature of "gas-fittings," some tawdry castings soldered together and blackleaded, or coated with red, brown, or green pigment to imitate bronze. In the midst of an almost all-pervading artistic revival it seems that only metal-work had lagged behind. Artists could not find in metal what was so ready to their hands in wood or woven fabrics. The reason for this is that Academicians cannot directly employ the variety of skilled craftsmen required to fashion metals, and it required an exceptional effort to get anything produced, and at a cost out of all proportion high. A master must intervene, and artist-masters, in this branch of manufacture, are rare in England indeed, and have yet to be trained.

It thus happens that though much skill and money are expended in forming the pictures in which we daily live our lives, they are too often blotted with the machine-made products of ignorance. It was not so where art existed in olden times, for what can be more truly artistic than the mosque lamps, or many of the cathedral lamps preserved from the days of Charlemagne to the Renaissance,—the candelabra and torch-holders, cressets, the exquisite Eastern work on doors, or our own Mediæval hinge-work, "when the very nail-heads were things of beauty," the knockers and grilles, or even the homely fire-dogs? What we in England have so long endured with, in the way of metal-work, could only be tolerated where art had long slumbered, and now that it is reawaking it is time that the whole lot of Birmingham rubbish should follow the staring prints and chintzes and wall-papers to the "African market" or any other limbo willing to absorb it.

The Decorative Uses of Iron in the Past.—Chief among the metals used for domestic or economic purposes is *Iron*. From the extensive use that must be made of this metal, both inside and outside our buildings, its treatment or forging is of paramount importance, yet no branch of artistic manufacture has so completely lagged behind in our art revival. That this industry was at home in our country from the very early ages, is shown from the fact that peat-bogs and other exceptionally favourable stations have yielded weapons and fragments of unknown date, but which bear evidence of antiquity, interlacing them with the "bronze" age. These earliest specimens of European work possess no more than an antiquarian interest, and nothing is left that has been fashioned into a purely artistic form in this metal older than the twelfth century. Pre-eminent and unique in all Europe among such objects is the beautiful wrought grille that screens and protects the shrine of Eleanor of Castille in Westminster Abbey. This, the most venerable iron grille of European art, is of exquisite scroll-work, with leaves and rosettes and little heads of animals, scarcely two of which are alike, and shows to what perfection the smith's art had even then attained. It owes its most fortunate preservation to having been for many years thrown aside as lumber and forgotten. We have, however, nothing like a complete record in this country of the progress of the smith's art. The next grille in point of date that has been preserved is of fourteenth-century work, and is extremely light and simple. The interval is a blank, except for the hinges of doors and muniment-chests. The grilles in our cathedrals of later date were obviously designed more for strength than beauty, though a few exist of lighter work, such as at Chichester and Arundel; but in other European countries the smith's work maintained its excellence both in point of design and workmanship. Still later, towards the close of the fifteenth and in the sixteenth centuries, perhaps as a result of the decadence, wrought iron gave way to wood and brass in the more sumptuous works required by the church, and it was not until Gothic architecture had passed away, and the use of iron had become general in domestic buildings, that the smith's art revived. Owing probably to the dampness of our climate, little out-door ironwork remains in this country of earlier date than the eighteenth century, though beautiful specimens abound in Italy, Germany, and Spain. With the reign of Charles I. a purer Classic style of architecture came in, and a change came over the spirit of design in England, and the ironwork, which was very largely used, became imbued with a character that remained essentially English, and continued, almost without modification, until a further change in fashion caused the smith's art to be for a time altogether forgotten.

The Extinction of the Art of Decorative Forging in Western Europe.—Mid-European art has been, since the days of the Grand Monarque, under the influence of France, and French influence doubtless led to the total cessation of the use of forged iron in architecture in the reign of George IV. The Great Napoleon, on assuming the title of Emperor, endeavoured to invest his newly-created dignity with greater reality and splendour by surrounding himself, as far as possible, with the attributes of the Cæsars, and the gorgeous, if somewhat debased style of Classic art known as the "Style de l'Empire," under his influence, displaced all others. This style was, unfortunately, quite incompatible with the lightness and elegance of wrought-iron work, and seemed to demand a somewhat elaborate and massive treatment of bronze for its gates, railings, and lamps. The intrinsic value of bronze prohibiting its use in such large masses in a general way, designs inspired by the bronzes of ancient Greece and Rome were, as a natural result, reproduced in the cheaper and baser metal, cast iron. In England the style acquired a simplicity of treatment and dignity under Nash in the days of the Regency that is not out of place in our London streets, and of which Regent-street is a good example; but still it afforded no scope for the smith, and the metalwork required by it was massive in character, and impossible to be wrought, and could only, in fact, be supplied economically by castings. Very little actual bronze was used, while of cast iron almost all that has been exposed has suffered mutilation, owing to the brittleness of the material.

The origin of cast iron is involved in some obscurity, and iron slag is often found in quantity where there is not even a tradition of the existence of smelting works. Most of the early foundries seem to have been on a very small scale, and located deep in forests where an unlimited supply of fuel could be gathered. The old fire-backs are the best known of the old castings, and seem, from the costumes depicted, to date at least as far back as Charles I. The railings of St. Paul's are well known as a very early example of the use of cast iron on a grand scale; but cast iron did not commence to regularly compete with wrought iron until the "Adams" period, when the two were often combined in the same design. Thenceforward it rapidly ousted wrought iron, and by the beginning of the nineteenth century had completely superseded it for all decorative purposes.

The Decorative Uses of Brass in the Past.—The artistic working of brass far exceeds in antiquity that of iron. Without going farther back than the introduction of Christianity in our own country, we find that already in the

tenth, and even preceding centuries, brass was extensively used for crucifixes, chalices, caskets, candlesticks, reliquaries, and other articles connected with religious ritual. A little later, more massive articles, such as the eagle stands and candelabra, were made from it, and still later the flat incised monumental brasses. Hanging coronas or circles of brass hung by chains, with sconces for candles, were very early introduced, the oldest of these extant being the gigantic coronas of Aix-la-Chapelle and Hildesheim, which, besides being richly perforated, have temple-shaped lanterns instead of the usual sconces to receive the candles. The image of a saint often occurs amidst the candles in German examples, and is mostly surmounted by a canopy. In late specimens the band is omitted, and arms to hold the candles spring direct from the base of the canopy. These, in most cases votive hoops of brass with sconces, often with inscriptions, and with or without canopies, remained almost the only form of hanging lamp used in our churches until Mediæval architecture passed away. The forms of other ecclesiastical objects were also conventional, and subjected to no greater modifications. During the thirteenth and fourteenth centuries, at least, brass was embellished with the *champlevé* enamel and gilding. In the fifteenth century rich and massive screens and altar-rails, such as the superb screen and gates of Henry VII.'s Chapel, were introduced. There is little brasswork of the reign of Elizabeth, carved wood and alabaster to a great extent taking its place, and when it re-appears in our country it is in the plainest and severest forms, such as those depicted in numberless Dutch paintings and by Hogarth. The basis of nearly all these designs seems to have been a number of round balls connected by mouldings and necks, whether intended to form fire-dogs or candelabra. Large brass platters, with *repoussé* figures or ornament, were also made, but there was otherwise a nearly complete absence of ornamentation on works in this metal until the more lavish taste of Louis XIV. penetrated to England and led to the manufacture of the richly ornamental style of work known as "ormolu." The very distinctive styles of Louis XIV., Louis XV., and Louis XVI. were all in turn imported, and the brazen candelabra, clocks, and chandeliers of all these periods are very beautiful, and now command excessive prices, while the buhl and marqueterie furniture were largely mounted in brass. Our school of Chippendale, however, very frequently carved and gilded wood to imitate metal, and the brothers Adam still more often imitated it in wood and plaster. The French Empire gave a new impetus to brasswork, and entire tables and couches of exquisite finish and detail were made in it, though the style affected was mannered and peculiarly Gallo-Classic. English taste was, however, as much influenced as previously, and under George IV. the hanging oil-lamps with Argand burners, which were almost universally used, took a very elaborate and costly character, so that one of them was not thought an unworthy present even from his Majesty to so august a body as the Royal Academy of Arts. Little change in their treatment took place until the introduction of gas extinguished everything in the shape of artistic metal-work.*

PARIS STONECUTTERS, SAWYERS, AND FURNITURE MAKERS.

THE French Parliamentary Commission on the industrial crisis still continues its labours. The great army of workers pass in front of the Forty-four Commissioners as soldiers during an endless review, and it is impossible to think of the huge volumes that are being built from their evidence without feelings akin to alarm. Already a protest has been raised. The wisdom of the whole proceeding is open to question, and many persons are inquiring anxiously whether it is altogether wise to lay bare before the whole world all the shortcomings of French industry. If the case could be fairly stated, perhaps no great harm would be done, but the natural tendency of each witness is to paint the picture in the blackest colours. Already a German firm has printed in four languages the evidence given before the Commissioners, affecting the special branch of trade in which it seeks to compete with the French. The conclusion drawn is, of course, most damaging. French trade is represented as completely annihilated and supplanted by the German competition. All these considerations have not as yet affected the Commissioners, and they continue collecting evidence as in the past; opening the doors wide to all parties, and listening indiscriminately to every side of the questions involved.

The stonecutters of Paris gave evidence that they numbered, in all, about 18,000 workmen, some five years ago. The trade was now, however, so slack that there remained only 12,000 stone cutters in Paris, and by far the greater part of these workers were unable to obtain regular employment. The actual conditions of work are very severe, though the pay is not low for France. The men earn 8d. to 8½d. per hour, but they are expected to work from twelve to fourteen hours per day. About 300 out of every 1,000 workmen return to their native villages in the provinces during the winter; though a few years ago the number of provincials in the trade exceeded that of the Parisians. While the trade has fallen off, the salaries have not increased, and the delegates giving evidence declared that the wages were as good ten years ago. They further stated that, on an average, the stonecutters worked 240 days in the year, and this produced an annual income of 96*l*. The state of the works in course of construction and the projects in hand did not indicate that there was any prospect of improvement in the trade. When asked what remedial measures seemed most practical, the delegates suggested that the employers should retain a certain per centage on their salary, so as to create a benefit fund sufficiently large to render efficacious service. The fund actually in existence was absolutely useless; it was not seriously supported, and the amounts collected were as a drop in the ocean. The salaries, they further stated, need not be increased, but the hours of work should be reduced to eight or at most nine hours. The nature of the work was so laborious that it could not be maintained at a high pitch for a longer period. On the other hand, eight hours' good work should suffice to bring in wages amounting to the sum now paid for twelve to fourteen hours; that is to say, 7s. 2d. to 8s. per day.

The sawyers also work twelve hours a day. Their corporation consists of some 900 members, 300 of whom only obtain employment for a few days each month, and in the winter the work is restricted to eight hours. The pay, fixed by the town tariff, amounts to 8½d. the hour; but in these bad times many men are glad to accept work at 7d., or even 6d., the hour. This depression they trace back so far as 1879; and though their syndicate possesses a benefit fund, the amount subscribed was so small that no efficient aid is given.

The machine sawyers compose a different corporation, numbering about 1,000 men, and there is also a trade union. Its affairs were, however, so badly managed that, though it possessed 700 members last year, there now remain only 300 adherents. The greater part of the workmen are out of employment, and the masters have profited by this circumstance, to reduce the salaries to 7d. the hour. One of the witnesses, M. Kaiser, pointed out that in this trade accidents were exceptionally frequent; and though the employers did pay benefits when such misfortunes occurred, they deducted at least half the money given from the salary of the workmen. He, therefore, expressed in energetic terms the desire of the entire trade to see M. Martin Nadaud's Employers' Liability Bill adopted by the French Chambers.

Intimately connected with building are the trades in furniture, and these have also suffered from the simple fact that, as the number of houses built is reduced, there are not so many apartments to furnish. It is estimated that there are about 25,000 cabinet-makers, turners, wood-carvers, and chair-makers in Paris. In the large workshops the time is fixed to ten hours per day, but those who are paid by the piece often continue toiling for fourteen hours. There are about 2,000 employers, though the masters' union consists of only about 115 members, but these latter comprise the heads of the principal firms. The delegates from this masters' union stated that some 5,000 men were now altogether without work, while an equal number were only employed for half the day. They could affirm, however, that at least 10,000 men were working full time and earning 6s. 6d. per day. In discussing the causes of the depression, the representatives of the masters' union thought that the construction of large factories in the provinces, foreign competition, and the increased cost of production, had largely contributed to bring about the present result. Universal exhibitions had helped to develop the success of foreign manufacturers. The witnesses further complained of the spread of good taste in France. This, strange to say, they qualified as a special cause of the present depression. The keener powers of appreciation among the public engendered an increased demand for ancient furniture, &c., and this checked the production of modern goods. One of the employers, M. Lemoine, argued that the legal recognition of the trade unions would tend to ameliorate the situation. Professional schools should be created, every effort encouraged that tended to break down the spirit of routine and introduce the use of improved machinery. The *desiderata* of the employers he summed up in the five following stipulations:—1. Revision of the local or town custom dues. 2. Protection of factory or trade marks. 3. Extension of the powers of the consulary agents. 4. Suppression of the great public auction-rooms at the Hôtel Drouot. 5. Revision of the laws affecting the charges for transports and freights. In explanation of the fourth proposition, M. Lemoine stated that, in contravention with the law of 1841, new but badly made furniture was frequently sold at these auctions. This practice has become so general that there are manufacturers who work almost exclusively for the auction-rooms, and a judicial inquiry has been opened on the subject. During the course of the examination, it was also shown that the railway companies had imposed special charges for the transport of furniture. Indeed, it did not cost as much to bring furniture from New York to Bordeaux as to send furniture from Paris to Bordeaux, or from Paris to Marseilles. In conclusion, the delegates thought that the crisis, though severe, was not so acute as in 1875, and M. Lemoine declared that in spite of slight dissensions the workmen would always find their employers ready to help in every circumstance.

The delegates of the Cabinet-makers' General Association were also heard. This is a productive co-operative society, consisting of 140 members; but, at the present moment, the association is not able to employ more than one-fourth of its adherents. They reckon on the presence in Paris of 17.000 to 18,000 cabinet-makers, of whom a third part are foreigners. Out of the 18,000 workmen, 4,000 make luxurious and fancy furniture, 7,000 the current commercial furniture, and 7,000 the cheap ordinary goods. The first category of these workers receive 8d. per hour; the second, 5s. 10d. per day; and the third, 3s. 10d. per day. So much bad furniture has been produced of late, that the credit of French manufacture has suffered considerably. The delegates declared that they did not demand any privileges; they only desire to be on a footing of equality with the employers. They had participated in the contracts made by the town of Paris, and believed that the crisis would be appeased by the development of free associations.

* To be continued.

THE "MANTEGNESQUE" SCHOOL.

Now that we hear so frequently of the new Mantegnesque School, or new Mantuan School, in reference to various pictures in the art exhibitions of the day, a few particulars concerning Mantegna may be of interest to some of our readers.

Towards the middle of the fifteenth century there lived in Padua a prosperous tailor and embroiderer, named Squarcione. He was able to gratify his natural taste for the arts by travelling in Greece, and collecting fragments of ancient sculpture. With these models, he established an art-school for the instruction of youths, intending, it is supposed, to confine their attention and skill to designs for embroidery; but ultimately he drifted into practice as a painter, when he made use of their services in more important undertakings. He is said to have instructed a hundred and thirty-seven pupils in the course of his career.

Andrea Mantegna was one of these youths thus taught by Squarcione. He was young and poor when the prosperous embroiderer registered him in the guild of Paduan painters; but he came speedily into high repute, for he introduced pale grey still fragments of ancient

architecture into his pictures, with veritable Greek inscriptions upon them, which charmed the scholars and antiquaries of the day, and led them to laud his productions to the skies. Ariosto, in the thirty-third canto of "Orlando Furioso," mentions him as one of the three greatest painters of the age,—

"Leonardo, Andrea Mantegna, e Gian Bellini."

After a time, Mantegna offended Squarcione by marrying the daughter of a rival painter, Jacopo Bellini, and we hear of him as working in Verona, and then in Mantua, where he painted a large chamber in the castle of Ludovico Gonzaga. In this apartment he brought into one characteristic composition angels, Cupids, gods and goddesses, blue heavens, white clouds, garlands, medallions, lunettes full of fables on golden grounds, with the portraits of his patron and family, charger, hounds, and attendants, besides fragments of architecture and landscapes. It was for this patron he produced the famous Triumphs of Cæsar, now in Hampton Court, which was intended for the palace of San Sebastiano, in Mantua, but was ultimately purchased by Charles I. It is full of antiquarian knowledge pictorially displayed, all the details of weapons, shields, helmets, corslets, vases, and other items being correctly given from antique specimens; and the triumphal cars, spoils, elephants, trophies, and spectators exhibiting his wonderful applicatien of perspective. Word of the splendour of these works reached Rome, and induced Pope Innocent VIII. to send for Mantegna.

One of his first works in the Eternal City was the decoration of the walls and ceiling of a chapel in the Vatican, afterwards taken down when Pope Pius VI. added the Nuovo Braccio. Vasari tells us Mantegna wished to remind the Pope he had not been paid for his work, and, for this purpose, painted "Discretion among the Virtues." When his Holiness looked upon the figure he inquired what it meant, and replied, "If thou wouldst have Discretion well accompanied set Patience beside her." This new patron ultimately rewarded him handsomely, and sent him back to the Marquis of Mantua well satisfied.

Among other works Mantegna designed and built the church erected by the Marquis in honour of his victory over the French in an engagement on the river Taro, and afterwards painted a fine altar-piece for it, in which he showed the victor presented to the Virgin by St. Michael, St. Anna, and Joachim. This was one of the pictures removed to the Louvre by the French in 1797.

Andrea had two sons, who lived to afford him considerable artistic assistance. He built himself a good house in Mantua, which he embellished with paintings, both on the exterior and in the interior, and in which he is said to have maintained the condition of a cavalier till his death. Lorenzo de Medici visited his studio and employed him. Altogether he acquired a fortune by the exercise of his abilities. We learn from his will he founded a chapel, called the Chapel of Sant' Andrea of Mantua, and paid for a yearly mass to be celebrated in it, for ever, for the repose of the soul of his wife, Niccolosa Bellini. He died in 1506, aged seventy-five, and was buried in Sant' Andrea. This epitaph was placed on his tomb:—

"Esse harem hunc novis, si non præponis Apelli,
Æneа Mantineæ qui simulacia vides."

Thus the new art term, "Mantegnesque," must be interpreted to mean a reproduction of the style of composition of the most receptive of the pupils of the prosperous and art-loving Squarcione.

Proposed Industrial and Fine Arts Exhibition for Bristol.—It is proposed to hold an industrial and fine arts exhibition at Bristol next autumn, during the months of September, October, and November. Hitherto a great difficulty has been to obtain a site large enough and in a sufficiently accessible position, but by permission of the Council of the Bristol University College and of the Committee of the Bristol Blind Asylum, a large piece of ground extending behind the Rifle Drill Hall and the Blind Asylum, is now available for a temporary building, with ample space for machinery in motion, while the Rifle Drill Hall will also be utilised for exhibits and the racquet-court utilised as fine-art galleries. A guarantee fund of 4,000*l.* is asked for, and at an early date a meeting in support of the project will be convened by the mayor.

FURTHER NOTES ON BUILDING EXHIBITS AT ISLINGTON.

In our previous notice (p. 457, *ante*) of the principal objects on view in the Building Trades' Exhibition at the Agricultural Hall, we were, perforce, obliged, through their multiplicity and the exigencies of our space, to notice some of them very briefly. There are, however, several exhibits in some of the sections of interest to the building constituency and the general public, which call for fuller notice; and some others, hitherto unmentioned, which may be indicated as we pass on, even though we may not describe their features in detail. Though exhibitions of the kind under notice held less frequently, say triennially instead of annually, would afford a better stand-point for measuring the progress made, we must accept matters as they occur, and draw what favourable conclusions we can on behalf of all the legitimate interests concerned.

This year's display in the department of natural building stones, dressed and undressed, is very small compared with that of former years. The marble and ornamental stone applied in chimney-pieces and other decorations must, of course, stand apart. If the supply of natural building stones is somewhat scant, the deficiency is made up by a fair show and variety in artificial stone and concrete.

Of building stones, granite, and red, blue, and other limestones and sandstones, some good specimens are shown in the exhibition by Messrs. Wheeler & Hindle. A few specimens are dressed as applied for ornamental purposes. The Bessborough granite, of different colours, which, we presume from its name, is an Irish granite, is very hard in texture, and takes a good polish. The Dumfries stone dresses well. The exhibitors being quarry-owners as well as stone-merchants, are in a position for supplying a large assortment of stone for building, paving, and other purposes. An examination of the specimens of Bristol blue Pennant and Wycombe stone, shown by Free & Sons, convinces us that the former stone is suitable for a variety of uses. It shows very well as dressed ashlar, and exhibits an even and good surface in monumental work. Its composition, hardness, and durable qualities as a gritty stone render it applicable for kerbing, paving, and even common road metalling. Similar remarks may be applied to the materials supplied by the Mangotsfield Pennant Stone Company, who display slabs for railway-platform copings, paving, kerbing, &c. Mr. John Dean, though a quarry proprietor, has no display of stone, his quarries being apparently of slate, but what he exhibits in the way of large-size slabs for tanks or cisterns are of very good quality, and can be commended. The Velinheli ton slates, and the Westmoreland blue and green, give forth a good ringing sound and exhibit in appearance and weight,—qualities that bespeak endurance. Though there are other firms who show a good selection of slates, and some slabs for cistern work, there is no necessity for details concerning a class of goods long in the market, and the qualities of which are generally known to the building world.

Of bricks and tiles there is a good display on the part of various firms, the principal of which we have already noticed. There is little very new in the brick or tile way in the present exhibition. The stands of Messrs. Rosher & Co., Broad & Co., and some others mentioned in our previous notice, exhibit in some instances a large and varied assortment of facing, place, stock, and other bricks, some hand-made, and more machine-moulded. Hand-made bricks are still much run upon by a number of builders. Though rough and ill-shaped in many cases, they are lighter than the machine-made article, and that is a consideration with a certain class of small builders who have the cost of cartage to consider, and for other reasons also well known to themselves. There are specimens of good gauged brickwork in the present exhibition, and of carved ornament in the same material. A novelty in brick construction is shown by Messrs. Smith & Son, in the employment of their patent bricks. These are made with projecting bands or rims flush externally with the face of the bricks, but rising, of course, a small distance above the level of their bed and abutting ends. The bands are about ½ in. in breadth. The object is to reduce the visible joint without decreasing the thickness of the internal bed of mortar. From the specimen of the work executed and *in situ*, the object appears fairly accomplished, and the features of the new system of close joints are worthy of attention. The Woolpit Brick and Tile Company have put up a small erection since our first visit to their stand, and this structure very well exhibits the excellent effect of work executed with their bricks, which are admirable in colour. Hall's patent hanging tiles are glazed tiles for reflecting light, so constructed that they can without difficulty be applied to existing walls of any material, where circumstances require it; for fixing to brick walls they are made to course with the bricks.

Of concrete work, classic, ecclesiastical, and domestic, the well-known firm of W. H. Lascelles & Co. present an unequalled display. The execution of the portico for the Wesleyan chapel of Lynn is exceedingly well manipulated in grey cement materials; balustrades, pedestals, and plinths, the shafts or columns with their reedings and flutings, the foliage of the capitals, and the entablature with its dentilled cornice, all must command praise considering the material of their construction. The two windows with double transoms, in reddish concrete, for the new wing of the Chest Hospital, City-road, are also well rendered. The enriched panellings and part of a large cornice, of light Mansfield colour, for a mansion in Westminster, also merit due commendation. The other work in concrete is the best of its kind, and if any contractor in concrete building deserves recognition for his enterprise and for overcoming no small difficulties in his special line, that individual is he whose excellent exhibits we have been noticing. The specimens on view by the Albion Concrete Company exhibit good handling and finish. The bay window in buff concrete, complete in its details, though temporarily erected, affords a very good idea to the ordinary public of the capabilities of concrete. The ornamental work, of which sundry specimens are on view, is fairly up to the mark. The exhibits in concrete material shown by Wilke's Metallic Flooring and Eureka Concrete Company are very noticeable. In addition to the paving specimens, columns in clusters, Gothic arches and arcade work, various ornamental strings, and a fireproof concrete door, are shown. This door is a rather massive and heavy-looking performance, though enriched with panels and moulded joints and head. The dimensions as given are 7 ft. 6 in. by 3 ft. 6 in. and 2 in. in thickness. We would like to know to what extent this strong-room door is burglar-proof, which is another matter for consideration not to be overlooked. *Re* concrete manufacture, Mr. A. C. Ponton, architect, of Parkstone, Dorset, presents some samples of artificial stone and concrete. He holds that his samples demonstrate that the former and the latter materials can be made with the minute quantities of cementitious matter binding together our natural sandstones. He thinks also that at least twenty times the quantities are at present wasted in concrete and stone manufacture. Less time is employed in the making and hardening of the samples, and it is contended there is no shrinkage in the manufacture. There are other advantages put forth, which, if fully realised by experience in the use of the materials mentioned, must contribute to their favourable reception. Of course we have by no means exhausted improvements in the manufacture of concrete and artificial stone, or approached the limits of their capabilities for application. Among other firms of exhibitors in artificial stone who claim notice for some very good specimens of manufacture, are the Patent Victoria Stone Company and the Imperial Stone Company. The goods of the former have been several years before the public, particularly their pavement, and we have a knowledge of its durable qualities. It has been extensively used in various districts in London, particularly in the eastern portion. The part of a staircase, shown in artificial stone by this company,—the same as supplied to residential chambers in Westminster,—shows a very good surface finish, and as far as we could examine it evidenced great hardness. Window-heads, wall coping, bases, pedestals, and a great variety of objects are made of Victoria stone. The Imperial Stone Company's exhibits, as a whole, are generally good, and the material is quite applicable to the sewer work, water piping, and hollow kerb for electrical and other purposes for which they are intended. We may interpolate at this point mention of the Patent Slate (*Débris*) Brick, shown also in the Banner Patent Hollow Kerb (for telephone and electric lighting wires), and the Hastings

Hydraulic Stone. It is claimed that the first is impervious to moisture, and that it is unequalled for sewer, bridge, and other engineering work. The brick material is certainly very heavy and possesses great hardness, and, according to Kirkaldy's tests, it shows an actual crushing strain 1,056 tons to the square foot. The sanitary tubes made of this material are asserted to be cheaper and stronger than those made from earthenware, artificial stone, concrete, or other compounds. The Hastings "Hydraulic" building stone, "for all purposes," has been reported upon by members of the Institute of Engineers, who speak highly of its qualities. It is the invention of Mr. R. Holden Stone, C.E., of Melbourne, where it was first patented, and where it is stated to be largely used. The Hastings Company was the first established in England for the manufacture of this stone.

In the sections of Wood-working Machinery and Joinery there are some features worthy of fuller notice than that already given, but we cannot enter into lengthy details respecting a number of exhibits. A careful inspection of the machines, stationary and in motion, the hand and the steam driven operators, reveals to us the fact that little new or by way of improvement has been accomplished since our detailed review of wood-working machinery in connexion with a former exhibition. It would be out of place, therefore, to go over the same ground again. The exhibits in this line by the well-known firm of F. W. Reynolds & Co. maintain their ground for compactness in make, and efficiency in execution. Of their saw-benches, and moulding and mortising machines, whether in their simple or composite forms, scarcely anything additional can be said. We spoke before of the necessity that exists for the provision of cheap, compact, and efficient hand-working machines for the use of the numerous class of small builders that are scattered everywhere over the kingdom, and we again call attention to the *desideratum*. The general joiners and other steam-driven machines can only be profitably worked by large contractors who have always plenty of jobs on hand, but the small class of employers, by the aid of apprentices and labouring hands not otherwise employed, can experience no difficulty in providing the required motive power within certain limits. Easily worked hand wood-working machinery is a want far from being fully supplied. Messrs. Æ. Smith & Co., as on former occasions, display some efficient wood-workers, besides that valuable invention, Bowers's patent Separator, for intercepting and precipitating the mineral agents in the feed water of boilers, thus purifying the supply, and preventing the accumulation of the scale, that proves so disastrous. On the same stand is shown a novel mortising machine. It is an American invention, and the cutting operation is performed in a horizontal instead of a downward direction. The cutting tool is square, but hollow, in the centre of which revolves a centre-bit, or boring tool. Being pressed against the wood, the centre-bit clears out the major part of the sinking, the square cutting tool or hollow chisel pressing in simultaneously, and completing the perfect squaring of the mortise. It has yet to be seen whether this new novelty in mortising machines will make headway, and to what extent it will be generally applicable. Messrs. Lewis Lewis can be commended for some hand-feeding planing and panel-thicknessing machines, together with an effective machine for cutting circular mouldings. The automatic plane-iron grinder is capable of grinding cutting-tools up to 2 ft. wide. Sundry other exhibits on this stand all evidence good manufacture. Among the other wood-working machines, including circular and band saw benches, very efficient, though not possessing any new features, are those exhibited by Mr. E. S. Hindley and Messrs. J. Boyce & Co., respectively. Trier's Patent Grindstone Dresser is worthy of notice in connexion with wood-working machinery or cutting-tools, which naturally require grinding. The dressing apparatus is fixed on one end of the grindstone frame or stand, and, as required, it is made to move in a groove or plane transverse to the face of the revolving grindstone. The cutter attached for truing the stone is in itself a thin sheet of cast-steel, in the form of a cone. The revolving stone is met by the revolving cutter through the workman turning the handle of the dressing machine, the cutter traversing the face of the grindstone, and efficiently performing its work of truing. The whole operation to sight is much more simple than we can make it by further description. The same exhibitor shows Stauffer's Patent Lubricator, a very efficient appliance, and most suitable for lubricating wood-working and various other machines. It is easily attached, and the lubricant used lasts for a considerable time.

In the department of ordinary and high-skilled joinery work there are sundry excellent exhibits, particularly those in connexion with stairs, handrailing, and doors with raised and moulded panels, the firms of Messrs. Lascelles and S. Ransom taking the lead. The massive wreathed mahogany handrail of the former firm is unexceptionally good of its kind. The moulding of the rail is appropriate, and in its construction, as far as we could examine it, is geometrically correct. The teak wood entrance-doors, and the other doors with the mouldings struck in the solid on the stiles, are well framed and cleanly finished. Indeed, the whole of the joinery work at this stand, including the wood chimney-pieces, the wall panelling, and other kindred work in hard and soft woods, deserves commendation for its superior execution. The portion of staircases from level to landing *in situ*, shown by Mr. S. Ransom, with the various forms of handrails starting from newels and scrolls, and executed in different hard and fancy woods, are excellent specimens of high-skilled joinery work in all their parts. We only object to the carving executed on the back or top of the mahogany handrail, stretching from the scroll to a considerable way up the rail. This carving is, we think, quite out of place in a handrail, which should present an even surface for the hand to pass or slide over to the person ascending or descending the stairs. What we have said, however, in no way detracts from the general good workmanship exhibited. The inherent defects of the cylinder system in continued handrails are known to all experienced staircase hands, and from what we are presented with in Mr. Ransom's exhibits we think his workmen are able to cope with the difficulty, unless the plan should be radically bad. The house-joinery exhibits of Messrs. W. R. Crow & Sons in doors, mouldings, and patterns or lengths of the straight portions of handrails are good of their respective kinds. The joinery of the doors is well framed and cleanly finished, and the prices are remarkably low. The foreign joinery exhibits shown by two or three firms have little more than their cheapness to recommend them. Though fairly finished, the timber scantlings from which they are framed are very light, and as doors particularly are subject to constant wear and tear in many houses, a thicker scantling is desirable, to prevent warping and other ills that doors are heir to. A large amount of imported joinery work is, however, used at present in second and third class houses of the speculative kind. The ecclesiastical joinery exhibits shown by Messrs. Andrews & Co. in doors, sashes, frames, and panelling, are very good. The portion of a staircase, with its newel, handrailing, and balustrading, exhibits skilled workmanship. Of fancy joinery, but more akin to cabinet-work, are the exhibits of "The Pliable Wood Decoration Company." Doors, panelling, dados, ceiling work, cornices, columns, mouldings, &c., are covered with a veneer of a very thin description. The work, although it presents an excellent finish, and can be produced in a variety of veneers of fancy woods, does not come exactly within the scope of regular house joinery. The system will, no doubt, be patronised to a certain extent, but it can never become general in house building and finishing. Two or three exhibitors show a very good assortment of plain and ornamental turnery, Messrs. M. C. Duffy & Son mostly in the former line and Mr. McCrerie in the latter. The spiral, oval reeding, and fluting specimens in hard and soft woods deserve recognition. The outcome of skilled labour at the lathe is widening, and much more may yet be accomplished in ornamental turnery by improved mechanism.

Among some miscellaneous exhibits to which we may refer we may name Grünzweig and Hartmann's "Cork-stones," which are composed of cork reduced to small particles or granules and cemented together with lime, the resulting combination being a hard though very light substance, suitable for use in many situations. This is a German invention. Garratt & Fowler's patent plumbers', gas-fitters', and painters' lamps, exhibited by Messrs. R. Morgan & Son, are likely to be much appreciated by workmen, as they can be used in any position for joint-making. Messrs. C. F. Whale & Co. exhibit what is called the "Perfect" sash-fastener, an American invention which has some good points, though its title appears to be not quite justified. Mr. J. D. Tucker exhibits his water-tight sashes and frames, which deserve the attention of visitors. Mr. Charles Kemp makes a large display of the Netherton Enamelled Iron Company's street-name tablets, advertisement plates, &c. There is plenty of scope for the use of the former in several quarters of London. Messrs. George Waller & Co., in addition to the exhibits of which we made mention last week, show their patent "side-entrance" or "manhole" cover, which is a very clever and meritorious contrivance. It is so arranged that it can at pleasure be ventilating or closed, and in either case it is level or flush with the footpath, and forms no obstruction. With the side entrance cover with safety grating in present use, when the door is opened a grating rises to the level of the path for people to walk over, but the door stands up like the lid of an open box, and in crowded thoroughfares it is needless to say this is inconvenient and dangerous. In the new patent cover the door is made with slot openings so as to form a close door. When men are below, or it is required at any time to be used as a ventilator, this grating (which is hinged on to the door underneath) is unfastened, and allowed to hang down. The door is then again shut, giving free ventilation, and forming no obstruction, being level or flush with the pavement. Besides its increased convenience, this arrangement obviates the necessity of keeping a man to watch the side entrance when the door is open and standing up. The cost is no greater than that of the old style of cover. Messrs. Waller & Co. also show a new ventilator for soil-pipes (Bauchop's patent). At the stand of Messrs. Josiah Wedgwood & Sons, already briefly noticed, many of the tiles exhibited are of the Marsden patent impressed description. By this process the exhibitors are enabled to use rich glazes, giving warm brilliant results, and they are able to carry out the designs of architects without the heavy expenses entailed by ordinary means for dies and moulds and modelling. The large panel, 10 ft. 8 in. high by 5 ft. 6 in. wide, made for the Bristol Savings Bank, to the subject of the "Widow's Mite," is of tiles made by Marsden's process, and is a good example of bold outline drawing. It is from the design of Mr. Thomas Allen. Messrs. Lindsay & Co., whose constructive exhibits we mentioned last week, show one or two good specimens of ornamental wrought ironwork.

We have now more than exhausted our allotted space, but, though we have nowise used up all our notes, we must draw to a conclusion at this point. In doing so we will only further observe that, estimated by one or two exhibitions, though the progress in invention and in introducing new building wants has not been striking or remarkable, yet, gauged by what has been effected within the last decade, a decided and very appreciable advance has been made in sundry fields of our building industries. We repeat, however, that the exhibitions would have far more value and interest if they were triennial. They might then be really exhibitions of progress. Held annually, they tend to degenerate into bazaars.

WATER SUPPLY TO COUNTRY HOUSES AND ISOLATED PUBLIC BUILDINGS.

ARCHITECTURAL ASSOCIATION.

THE tenth ordinary meeting for the present session of this Association was held on Friday, the 28th ult., Mr. Cole A. Adams, the president, in the chair.

It having been announced that the next visit of the members would take place this Saturday afternoon, the 5th inst., to the Hampstead Congregational Church, Mr. A. Waterhouse, A.R.A., architect,

Mr. W. E. Rich read a paper entitled "Water Supply to Country Houses and Isolated Public Buildings," from which we take the following:—

It has fallen to my lot to give considerable attention to the subject of water supply to isolated country mansions and public institutions during the last sixteen years, and, too frequently, I regret to say, I have only been called upon for advice when the building has been already nearly completed. I venture to think that the hydraulic engineer's opinion might, with most advantage, be sought at an early stage, when the exact site for the house is being selected and the general plans and elevations are under discussion, as it is a great gain

to have the house in proximity to a knoll higher than its roof, on which a reservoir of ample dimensions can be constructed, and in the absence of such natural advantages, a tower, capable of receiving a large elevated tank, higher than any part of the roof, should be a notable feature. The provision of water on the site selected should be also one of the earliest operations, as the cartage of water is often a serious item in a builder's estimate, and, in some cases, would help materially towards paying the cost of the permanent waterworks.

Before proceeding further, it will be, I think, desirable to consider briefly the most ordinary means of water supply. A direct gravitation supply from a natural spring or stream higher than the house is in every way the best when it is obtainable, as it is, frequently, in the hilly districts of the North and West of England, Wales, and Scotland, where the rainfall is large, and the rock surfaces are almost impermeable; but in the cretaceous and oolitic districts of the South and East of England elevated streams are rare. The Earl of Kenmare's new house at Killarney is supplied from springs about one mile and three-quarters distant. They yield about 15,000 gallons per day, and are collected in a covered reservoir holding 30,000 gallons, and situated at an elevation of 110 ft. above the house floor; the water is conveyed thence to the house in a 4-in. cast-iron pipe, which bifurcates into fire-mains and service-pipes for drawing water direct all over the establishment.

When water is very scarce on high ground, material dependence has to be placed sometimes on the rain-water gathered from the roofs into large storage reservoirs, and it is well known in the West of England that the rainfall on the roofs of ordinary agricultural cottages will suffice for all requirements of its inmates if a moderate capacity of storage reservoir be provided. For large establishments so situated an artificial gathering-ground is preferable. At Sir Greville Smyth's, at Ashton Court, near Bristol, a half-acre plot of sloping ground near the summit of a hill behind the house is covered with a floor of impervious concrete with surface gutters for conveying any water falling on it to a 40,000 gallon covered reservoir below. For every inch of rain-fall upon this area about 8,000 to 10,000 gallons of water should be delivered into the reservoir.

When a gravitation supply is impossible there is no help for it but to have recourse to artificial pumping in some shape or other, and the several ways of pumping must be considered. The number of hand-pumps in the world probably exceeds that of any other machine, and most small private establishments in the country depend on such pumps for their water supply; but they are ill-fitted for large houses full of modern sanitary appliances and other apparatus for using and wasting water. A man working a hand-pump for an hour would scarcely do more than 60,000 foot-pounds of useful work in that time. One gallon of water weighs exactly 10 lb.: so, if the water in the well is 100 ft. below that in the tank to be supplied, he will only raise 60 gallons in that time. Similarly, if two men work together, they will raise 120 gallons in that time; and, if the gross lift be only 50 ft., they will together raise 240 gallons, but even that is no more than a leaky water-closet will waste in twenty-four hours without being noticed.

The nineteenth century rebels against the employment of thinking beings as mere "drawers of water," and thus it is better to replace manual with horse labour or artificial pumping power in large establishments. Roughly, a horse would do about ten times as much as a man, or would raise about 600 gallons per hour 100 ft. Working six hours a day a horse would thus raise about 3,600 gallons, but he would not be fit for much other work afterwards in the same day. When a horse is employed it is better that he should be yoked into an ordinary pole horse-works, with a circular path from 20 ft. to 24 ft. diameter, and he should thus drive three-throw pumps walking two miles and a half per hour. Twenty years ago an American type of horse-works, in which the animal stood on an endless band and pressed it backwards beneath his feet, was much employed, but they were found to be very dangerous, and many excitable horses were killed or ruined in working them. Mules and donkeys are frequently used similarly for pumping, and considering the sorry fare which contents them are probably more economical *pro rata* than horses, where a small power only is required.

The appliances for water-power pumping are numerous, but it must be borne in mind that to make water power feasible we must have a material volume and a material fall. One of the most efficient and simple in its details is the hydraulic ram. Ordinarily it raises a portion of the water which works it, and in action a large quantity of water in expending its energy on a small fall raises a small quantity on a high lift.

The efficiency of a ram rises to from 60 to 70 per cent., but for safe estimating I generally allow 50 per cent. efficiency.

Supposing 20 gallons a minute, falling 12 ft., are applied to work a ram, then I can easily raise $\frac{1}{2}$ of $\frac{20 \times 12}{100} = 1{\cdot}2$ gallons per minute $= 1{,}728$ gallons per day, with it. The late Mr. Easton, the founder of my firm, brought the ram patent to England in 1821. Rams using dirty water and raising clean are sometimes used, but they are complicated, and give frequent trouble.

A water-wheel driving pump is a convenient and very efficient arrangement when the fall does not exceed 12 ft. In an overshot wheel the water is discharged into buckets near the top of the wheel, and the full buckets on one side overbalance the empty buckets on the other, and drive the wheel round. Generally a set of three-throw pumps is driven by wheel-gearing from the wheel shaft.

Suppose a wheel 10 ft. diameter, with twenty buckets, receives water at 1 ft. below the top, and discharges it 1 ft. above the bottom, and each bucket holds 1 gallon of water, then, neglecting the velocity of the flow, the gross work done on the wheel per revolution is $20 \times 10 \times 8 = 1{,}600$ foot-pounds. Supposing the efficiency of the water-wheel and pumps together be 40 per cent., then there will be 640 foot-pounds per revolution of wheel available for pumping, and the water raised per 100 ft. at ten revolutions of the wheel = 6·4 gallons per minute.

An undershot water-wheel is less efficient, but very convenient for utilising low falls; and those of the Poncelet type, with curved blades, will work well with falls as low as 1 ft. only.

A turbine is a water-wheel of special type, with a vertical spindle, and is, I consider, one of the most efficient and interesting power-machines I know. It is very small and compact, and can be used for high falls up to 100 ft. to 200 ft., as well as falls of 2 ft. or 3 ft., and it will work when the tail is flooded. A 20-h.p. turbine on a 100-ft. fall would only be about the size of a dinner-plate.

After water-power for pumping, windmills should be considered; but wind is a very uncertain agent in this country, and the seasons when most water is required are often the calmest.

Steam-engines are generally applied to work three-throw pumps, and can often be arranged to do other duties on an estate, such as sawing and driving farm machinery, &c. A 4-horse-power engine, using 3 cwt. of coal, and driven by a boy, will do as much as ten horses in a day. Portable engines can be shifted about for other duties, but as a rule, fixed engines, with large Cornish boilers, suited for burning refuse wood, are preferable for permanent pumping works.

Gas engines, when an estate has its own gas-works, have the advantage of being ready for starting at any moment. They are rather complicated, but are improving constantly.

Pumps, as a rule, should be three-throw whether vertical or horizontal.

As to tanks, the lecturer went on to say, one was better than a large number, which were a danger to health, as each might accumulate a certain quantity of filth. The water should be kept in the dark as much as possible, because, if exposed to the light, it would encourage the growth of vegetable matter. He always sought an elevated point above the house-top, constructing a reservoir there in brick and cement. This, if well constructed with side walls and earth backs, would last intact for 2,000 years, good cement getting harder and stronger as time went on. Where he wished height for a reservoir, he made it circular. Such reservoirs cost from 10*l.* per 10,000 gallons, to 5*l.* per thousand for 100,000 gallons. The pipe for conveying a spring to the reservoir might be comparatively small, but from the reservoir to the house a larger pipe was requisite. As to constant service, in London we only received water for an hour or two every morning, but all modern waterworks had water in the pipes under constant pressure. The great thing was to draw water from the main without its passing into any subsidiary tank, as there was then no risk of contamination. In these days there was more danger of fire than in years gone by, and the best provision against it was a tank of ample dimensions, a large main from the reservoir to the house, a series of hydrants outside, and fire-cocks inside. Water-power could be applied to the working of hydraulic lifts for coals or luggage, and these lifts were also a great luxury to those who were unable to walk up and down stairs. Small hydraulic lifts could be used for dinners and other purposes. At Eaton Hall there were seven lifts of various sorts, one of them coming close to the drawing-room for carrying ices and other things, and others of considerable dimensions for taking up ladies' boxes. There was no reason why water-power should not be utilised in the kitchen for turning the spit, while if there was plenty of water and a good pressure, a man might have a diminutive turbine to work his lathe or blow his organ. It was better to dispense with filtration if possible, for unless carefully carried out it was a source of danger rather than of benefit. A filter required periodical attention, and every portion of its contents must be renewed. The animal charcoal filter did very well for a short time, but if left unattended to for a couple of years it would become filled with animal organisms to an alarming extent. Perhaps the only effective agent for dealing with organic matter was spongy iron. Water sometimes contained iron in solution, which caused inconvenience, and the proper way to deal with this was to expose it to the air. The Clark process was an arrangement for depriving water, containing carbonate of lime and magnesia, of its hardness. This apparatus was better suited to deal with water on a large scale, but it was possible to use it on a smaller scale. Some people considered hard water unwholesome and liable to cause stone and other diseases, but he had the authority of Dr. Tidey for saying that there was no instance on record of stone being caused by the use of hard water, and he doubted whether it was not more wholesome than soft. With regard to the quantity of water required in houses he was afraid this was a difficult matter to settle. If care were taken of it a small quantity would suffice, but allowance had to be made for a great deal of waste, and water in abundance was a luxury. Where he could get it on reasonable terms, he liked to provide a large country house with fifty gallons per head of its inmates, fifty gallons per horse in the stable, and 500 gallons per acre of garden per day, with an ample addition in case of fire. In reference to the sanitary arrangements for water they had to see that there was no contamination, and to have a covered reservoir of some material which would not affect the water. The lecturer explained, by means of drawings, the water supplies at Killarney House, Hindlip Hall, Lipyatt Park, Clumber, Goldings House, and other places, and the special fire service arrangement in Worcester Cathedral.

Professor Kerr, in opening the discussion, considered the lecture one of the best he had ever listened to, and as a member of the society upstairs, he envied them having such lectures. They heard a great deal in the architectural world of the variety of pipes within a house for supplying the necessities of its inmates, and he believed they had a great deal too many pipes. What with the gas, and heating and water supply, the houses of the present day seemed fuller of pipes than of anything else. The result too often was that this multiplicity of pipes kept the family in continual hot water. It was to our discredit in this country that we did not value a water supply sufficiently. The condition of the water supply of London was a disgrace. When he thought of the supplies of Glasgow and New York, and compared them with the wretched supply of the metropolis, it was scarcely possible to conceive how the public of London could submit to be so ill-served in this respect. Take the case of a small house, and see how simple an affair a complete supply became. The first requisite was to provide a reservoir, either outside or inside, and from

some source or other water must be brought to it. This could be done without difficulty if people would only go the right way to work, not depending upon filtration or other artificialities. It should be brought to the house and distributed over it in a simple manner, avoiding complications, and providing merely for the necessities of the inmates. The speaker concluded by proposing a cordial vote of thanks to the lecturer.

Mr. Riddett seconded the vote of thanks. He was interested to learn that the smaller reservoirs worked out at something like 2¼d. a gallon. In comparing the different tanks, there was a great advantage on the side of bricks and mortar. He was glad to notice the ample allowance of water per head, viz., 50 gallons. In towns 30 gallons per head was what the water engineer generally allowed. The waste-preventers now in use really added another pang to existence, and, in his opinion, they were all bad.

Mr. Eastman asked if the spring arrangement for fire extinction in Worcester Cathedral had ever been tested? It was a very old idea, and it had been pressed upon him in connexion with the theatre at Eastbourne; but he had gone minutely into the question, and found there was great danger of flooding the place when there was no fire. In Drury Lane Theatre they would find a large sprinkler arrangement over the stage, but the great drawback was in testing it. He believed that in course of time the arrangement would become clogged. In America the automatic sprinkler had often been a failure.

The vote of thanks was then put and carried by acclamation.

Mr. Rich, in replying, said that cast-iron tanks should not be very deep. A cast-iron surface would last longer than a wrought-iron one; but it was a treacheous material, and all flat surfaces had to depend on wrought-iron stays, which were liable to corrosion, especially in soft water. These considerations led him to prefer circular wrought-iron riveted tanks of a good thickness, which required no stays, when large capacities were required. Tanks were sometimes exposed on the tops of buildings, which was a very proper place for large ones, if they were covered over, but it was necessary then to guard against the action of the wind affecting them. He had used concrete reservoirs on several occasions. In putting pipes in houses it was his custom to use cast-iron or wrought-iron steam piping. He agreed that waste-preventers were an annoyance, and were only necessary when defective or inferior water-fittings were used. Simplicity was the first principle, and the fewer pipes, tanks, and fittings there were in a house to fulfil a given duty the better. The introduction of the arrangement he had referred to in Worcester Cathedral was due, he believed, to Canon Barry, who felt the great risk the old structure ran in having so much woodwork without protection. The sprays alone were not relied upon, but they were something, and there were also fire-cocks all the way downstairs, which could concentrate a strong jet on any point. The sprays had been tested, in the first place, over the woodwork in the tower, and they could be tested at any moment by reversing the jets, when a shower of water came through the louvres, and ran down outside the tower. The internal area of the tower was vastly smaller than that of a theatre, so that the apparatus in question was more applicable in this case.

Large Sales of Building Estates.—There were several sales of valuable suburban building estates at the Auction Mart last week. Messrs. Debenham, Tewson, & Co. submitted to competition the Norbiton Hall Estate, near Kingston. The estate, which is freehold, contains 14 acres. There were several competitors for the property, which was sold for 10,820*l*. Messrs. Baker & Sons offered for sale the Dundonald Estate, situated at Wimbledon, close to the railway station, and containing 38 acres of freehold building land. The auctioneer described the estate as forming one of the choicest building sites in the locality. He observed that it was connected with the main drainage system. The estate, which was offered in one lot, and included several old-fashioned residences now on the land, was sold for 28,000*l*., being at the rate of about 750*l*. per acre. Mr. Reid also offered the West Grove Estate, at Walton-on-Thames, containing eight acres of freehold land, which was sold for 4,000*l*.

ADMIRALTY AND WAR-OFFICE COMPETITION.

IN view of the rather unexpected result of the first competition for this important building, we beg to say that if any of the leading architects of the day who may have competed are desirous of appealing to public criticism, we shall be happy to give them the opportunity of doing so by publishing their designs at an early date.

THE EXAMINATION IN ARCHITECTURE.

AT the Royal Institute of British Architects the following gentlemen, who have passed the recent examinations in architecture, held respectively in London and Glasgow, are qualified to become candidates for Associateship, namely:—

Alexander McGibbon, Glasgow; James Anderson Williamson, Edinburgh; Alexander B. Wilson, Brisbane, Australia; James Ledingham, Bradford; Charles Mason, Nottingham; Thomas Frederick Pennington, London; William Henry Radford, Nottingham; Joseph Addenbrooke Saunders, Folkestone; Charles Harvey Heinrich Cazalet, London; Arthur Crow, London; Richard Malone Hamilton, London; Lionel Thomas Waller, High Wycombe, Bucks; Harry Anderson Paley, Lancaster; Samuel Hurst Seager, Christchurch, New Zealand; Andrew Whitford Anderson, London; Robert John Beale, London; Frederick J. Banister, London; John Bevan Phillips, Epsom, Surrey; John Moir Kennard, London; Walter John Nash Millard, London; Hedley John Price, Nottingham.

Of the above, the four who head the list were examined in Glasgow, and the remaining seventeen in London.

DETAILS OF AMERICAN CONSTRUCTION.

THE details of iron construction, which we give this week, are from what is called the "Barge Office" at New York, a structure intended for landing passengers and examining luggage from ocean steamers, and to which special reference is made in Mr. Gale's paper, reported on page 421, *ante*. The first sheet shows the details of the staircase construction, and the second one shows the iron standards and window fittings in plain and vertical section. On the plan, the use of the corrugated iron as a facing or skin will be observed. It is a curious kind of building to English architects, with iron skins twisted and bent into the sections usual with stone mouldings. The stair details exhibit very careful working out of detail drawings.

WIRRAL CHILDREN'S HOSPITAL.

THIS building is situate in Woodchurch-road, Birkenhead, and is intended to serve the whole district of Wirral, which embraces the peninsula lying between the rivers Mersey and Dee. The site contains about one acre.

The exterior is of Ruabon red bricks, with Runcorn red stone dressings and terra-cotta enrichments, with traceried work in vestibules by Messrs. J. C. Edwards & Co., Ruabon. The roof is covered with red tiles.

Accommodation is provided for about forty in-patients in four wards, two large fourteen-bed, one eight-bed, and one four-bed, the latter to act as a separation for infectious or contagious cases. The wards are lined to about 5 ft. high with glazed bricks, and above this with selenitic cement. The ceilings are also of cement; the floors are of narrow pitch-pine battens, secret-nailed and wax-polished. The sashes are wrought iron. The corridors are all fireproof. A large out-patient department is provided, and an administrative department sufficient for double the present requirements. The nurses being ladies, each has a separate bedroom.

The baths, sinks, &c., are all of glazed fire-clay. The drains are thoroughly ventilated, and have been laid under the advice of Sir Robert Rawlinson, C.E., C.B., who very kindly gave the architect his assistance.

One of the large wards has all the lights above the transomes, twenty-two in number, filled in with stained-glass illustrations of popular nursery rhymes, by Ballantines, of Edinburgh, and Holloway, Liverpool.

The heating, ventilating, grates, ranges, mantelpieces, and ironwork generally, were executed by Messrs. Bennett Bros., of Liverpool, who also supplied the wrought-iron and bronze vestibule gates. Messrs. A. Bleakley & Son, of Birkenhead, were the builders, and Mr. John Clarke, 19, Castle-street, Liverpool, was the architect; Mr. A. Clarke having the charge of the building.

This building was opened by the Duke of Westminster, K.G., in June last, when the patients were removed from the old hospital in Oxton-road, and is the third one since the foundation of the charity. As soon as funds will permit it is intended to add the other wing, which will double the accommodation for in-patients.

The frontage faces west, the three main wards face north and south, and all get a south view. Many of the special features, such as stained glass, gates, wrought-iron lamps, &c., have been gifts; the total cost, exclusive of these and of land, has been about 9,000*l*.

ROWALLAN CASTLE, AYRSHIRE.

THIS castle is beautifully situated about four miles from Kilmarnock, and is partly ruined, one or two rooms only being occupied. It bears the date 1643;* but parts of it must be much earlier, as it was the birthplace of the Queen of King Robert II. of Scotland. It is built on the sloping side of a high mound, and has, therefore, a basement-story on one side only. The courtyard is, we may say, on the first-floor level, and is reached by a long flight of steps which ascends from the ground level outside upwards between two circular flanking-towers, pierced by loop-holes and windows. At the top of this stair is the main entrance,—a low-arched opening or doorway from which an arched passage runs right through the front buildings to the courtyard at the back. Rowallan is a well-known and interesting old place, and contains many things which deserve attention. There are a number of fireplaces, a quantity of wood wall-panelling, some good carved oak work, such as wall-cupboards, screens, wardrobes, table and chair, stair balusters, and a notable carved oak door. Externally there are some good Scottish masonry details, chimney-stacks, doorways, water-spouts, corbel-steps, &c., and an excellent ruined gateway in the outer wall. The castle is built of reddish stone, which imparts to the building a rich, warm colour, making it a favourite subject for landscape-painters. The date, initials, and crest are similar to those on the neighbouring old parish church at Fenwick, and show it to have been at one time the property of the family of Muir. JOHN C. T. MURRAY.

UPTON CONGREGATIONAL CHURCH AND SCHOOLS.

THE plan of this church, of which we give an illustration this week, is based on a Latin cross. There are no seats in the side aisles, so that all seats being within the nave and transepts there is an uninterrupted view of the preacher. There are sittings for 672 persons on the ground-floor, and for 328 in the west and two transept galleries, making 1,000 in all. The walls are built of brick and concrete, and faced with split flints. All the dressings and internal stonework are of artificial stone, manufactured by the Eureka Patent Stone Company. It is coloured to imitate St. Bees red sandstone. The church will be warmed by hot air and lighted by pendent coronæ.

The block of buildings comprises church, lecture-hall, and other rooms attached, and Sunday-schools, young men's and young women's clubs, and caretakers' residence. The schools are novel in design. They are hexagonal in plan, with class-rooms on three sides on the ground-floor, and on five sides on the first floor. These all open into the body of the school. The roof and clearstory of this school is supported on iron columns.

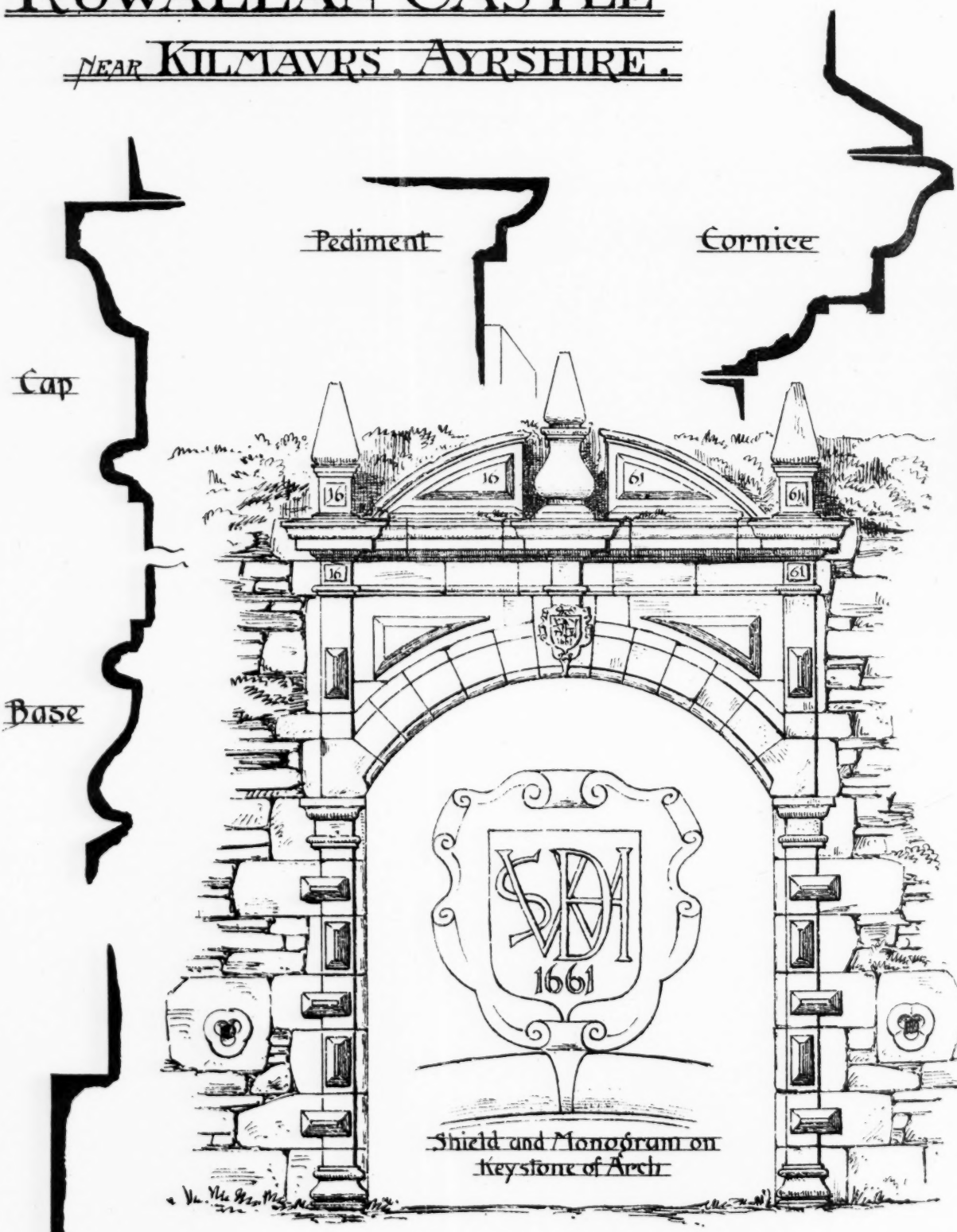
The infants' school is of similar shape, separated from the main school, so that their more noisy exercises may not disturb the other scholars.

The lecture-hall and vestries have cost 2,300*l*. The contract for the church amounts to 5,000*l*. The schools are not yet contracted for. The architect is Mr. T. Lewis Banks (now T. L. Banks & Townsend), of 23, Finsbury-circus, and the contractor Mr. Charles Sharpe.

* So in Mr. Murray's letter: though it will be observed that the elevation of the gateway in the drawing bears the date 1661.—ED.

ROWALLAN CASTLE

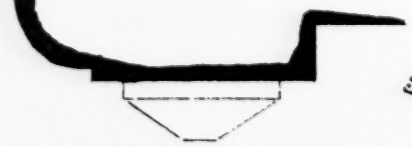
NEAR KILMAVRS. AYRSHIRE.



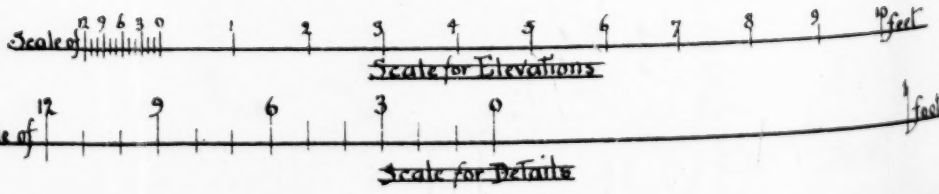
Shield and Monogram on Keystone of Arch

Elevation of the Outer Gateway

Sketch of

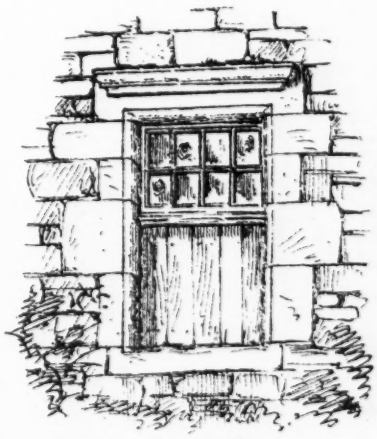


Jamb of Gateway



C. F. Kell Photo-Lith & Printer

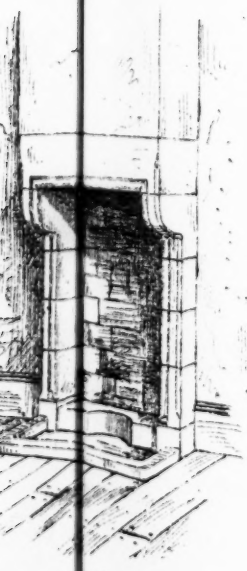
General view of the Castle



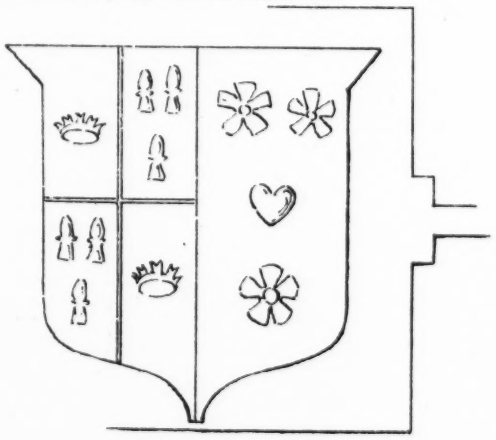
Sketch of a Window in the Courtyard

Pediment

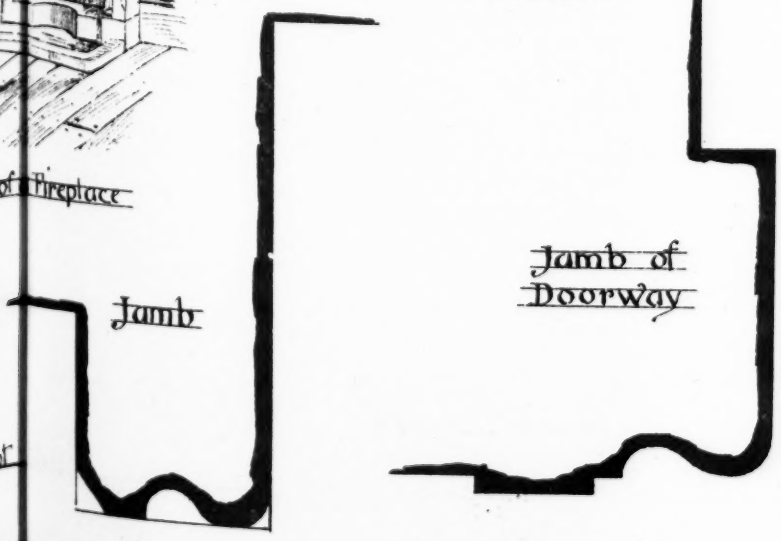
Cornice



Sketch of a Fireplace

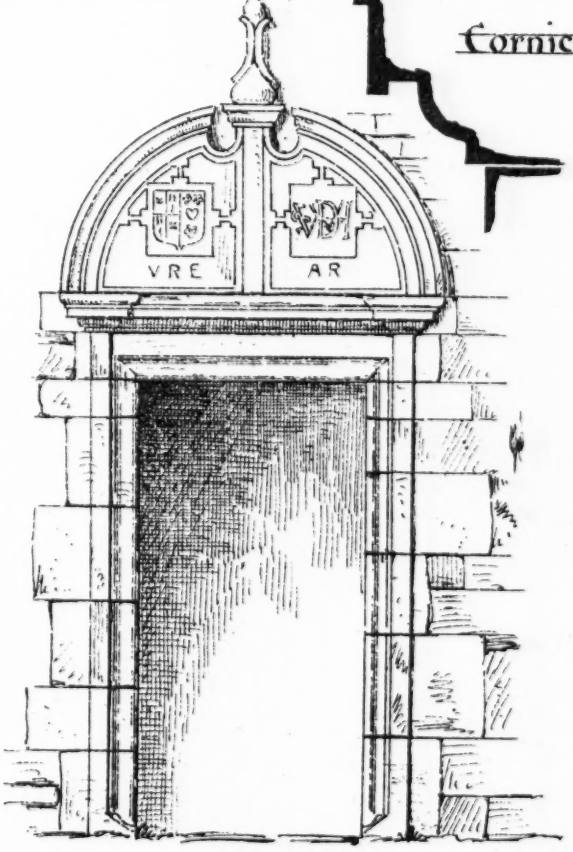


Armorial bearings in Pediment



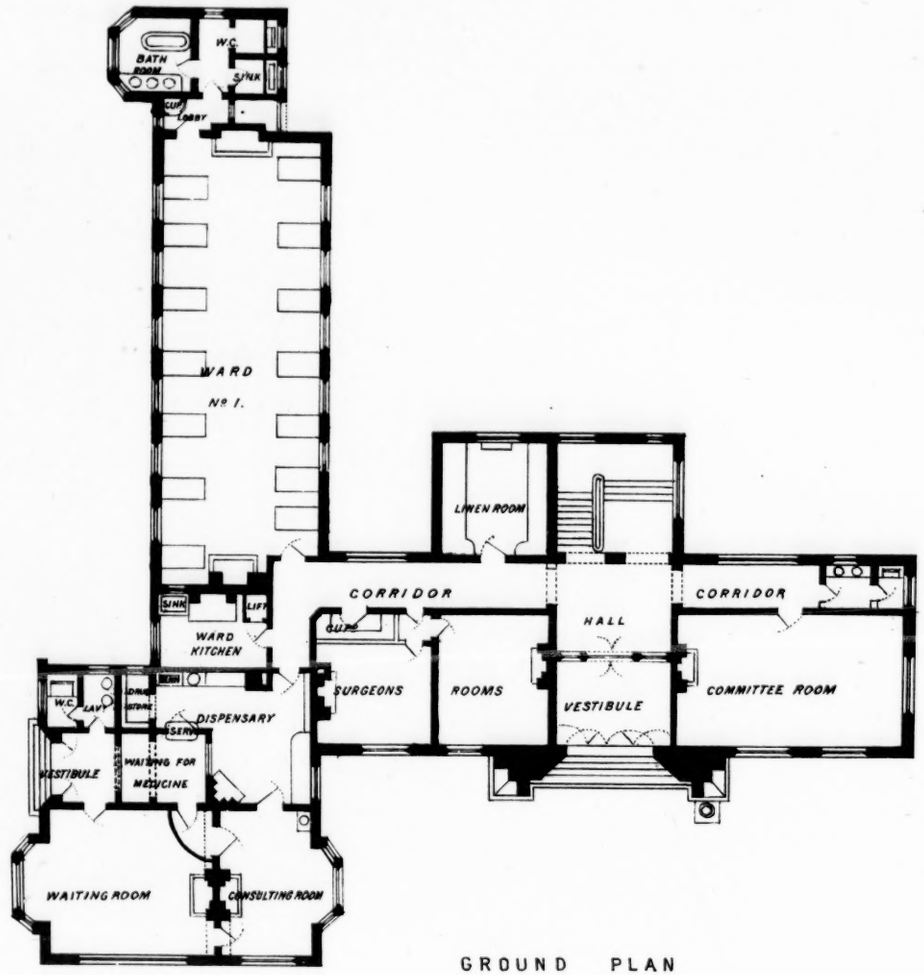
Jamb

Jamb of Doorway

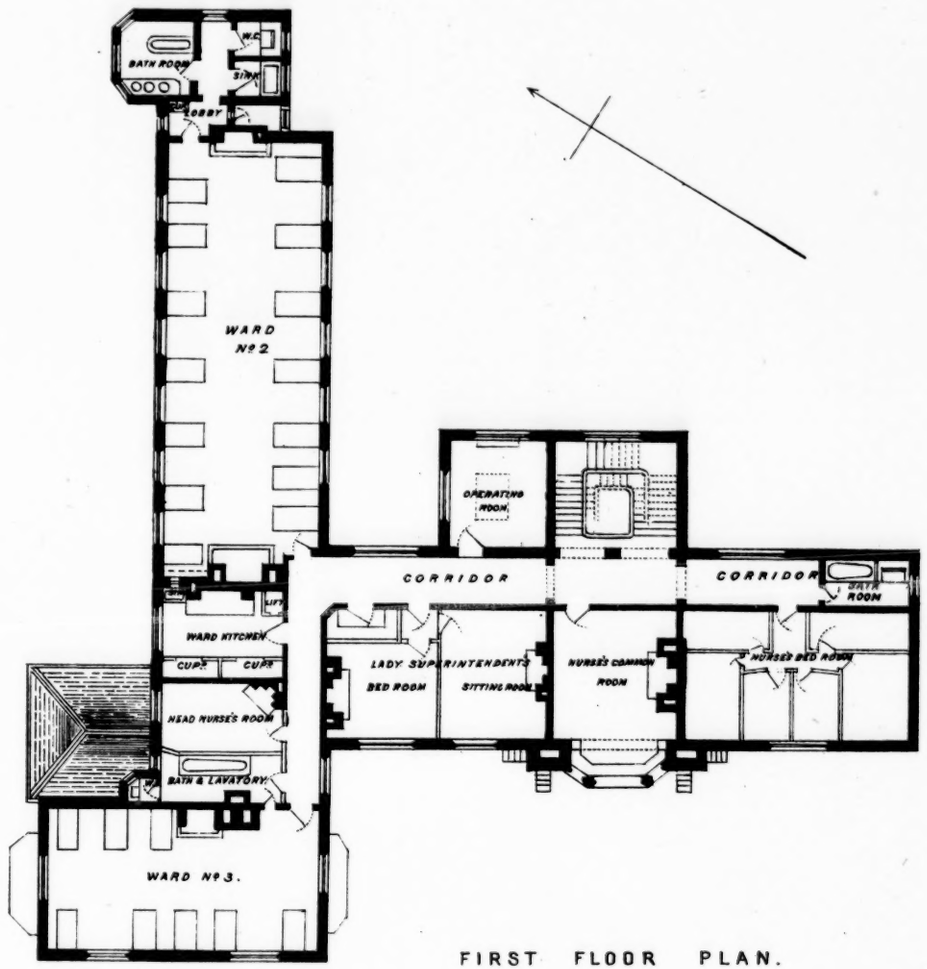


Elevation of a Doorway in the Courtyard

JOHN C T MVRRAY
GLASGOW. NOVR. 1883



GROUND PLAN



FIRST FLOOR PLAN.

Vincent Brooks Day & Son. Photo

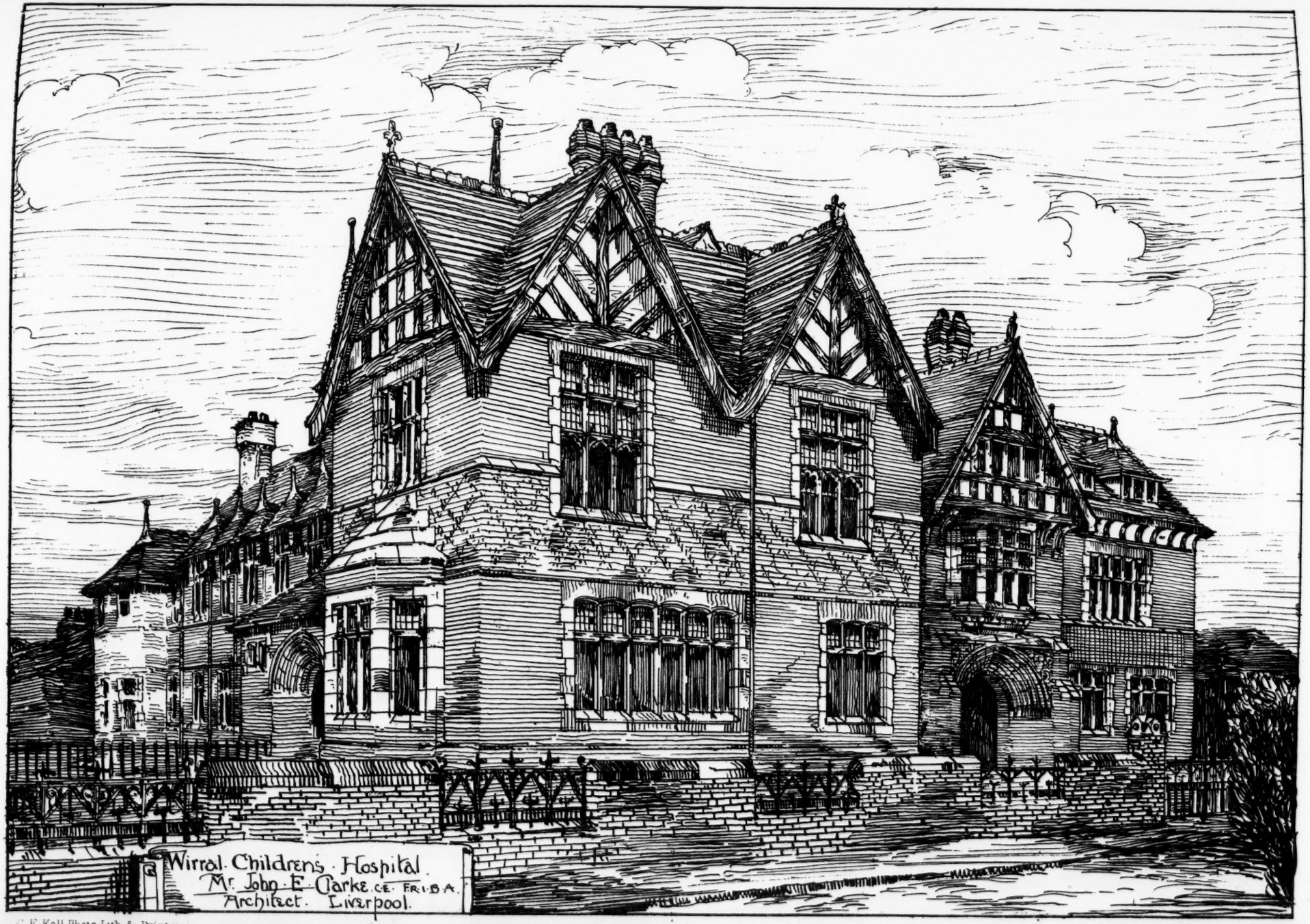
WIRRAL CHILDREN'S HOSPITAL——Mr. John Clarke, Architect.

WIRRAL CHILDREN'S HOSPITAL—Mr. John Clarke, Architect.

Wirral · Children's · Hospital · Birkenhead ·
View from Whitchurch Road Mr John E. Clarke, C.E. F.R.I.B.A. Architect. Liverpool.

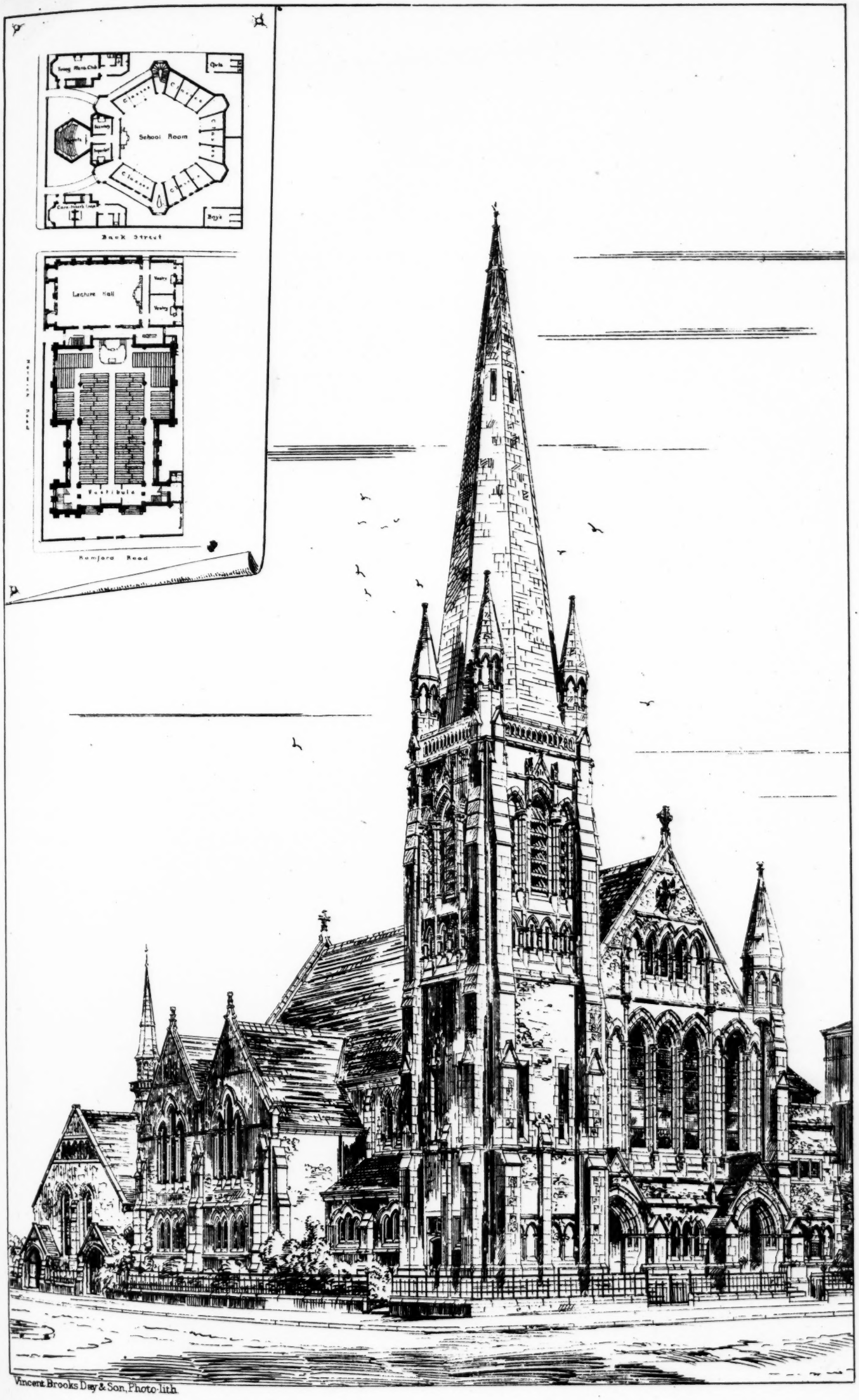
C. F. Kell Photo-Lith & Printer.

8 Castle St Holborn London E.C.



C. F. Kell Photo-Lith. & Printer

8 Castle St. Holborn. London. E.C.



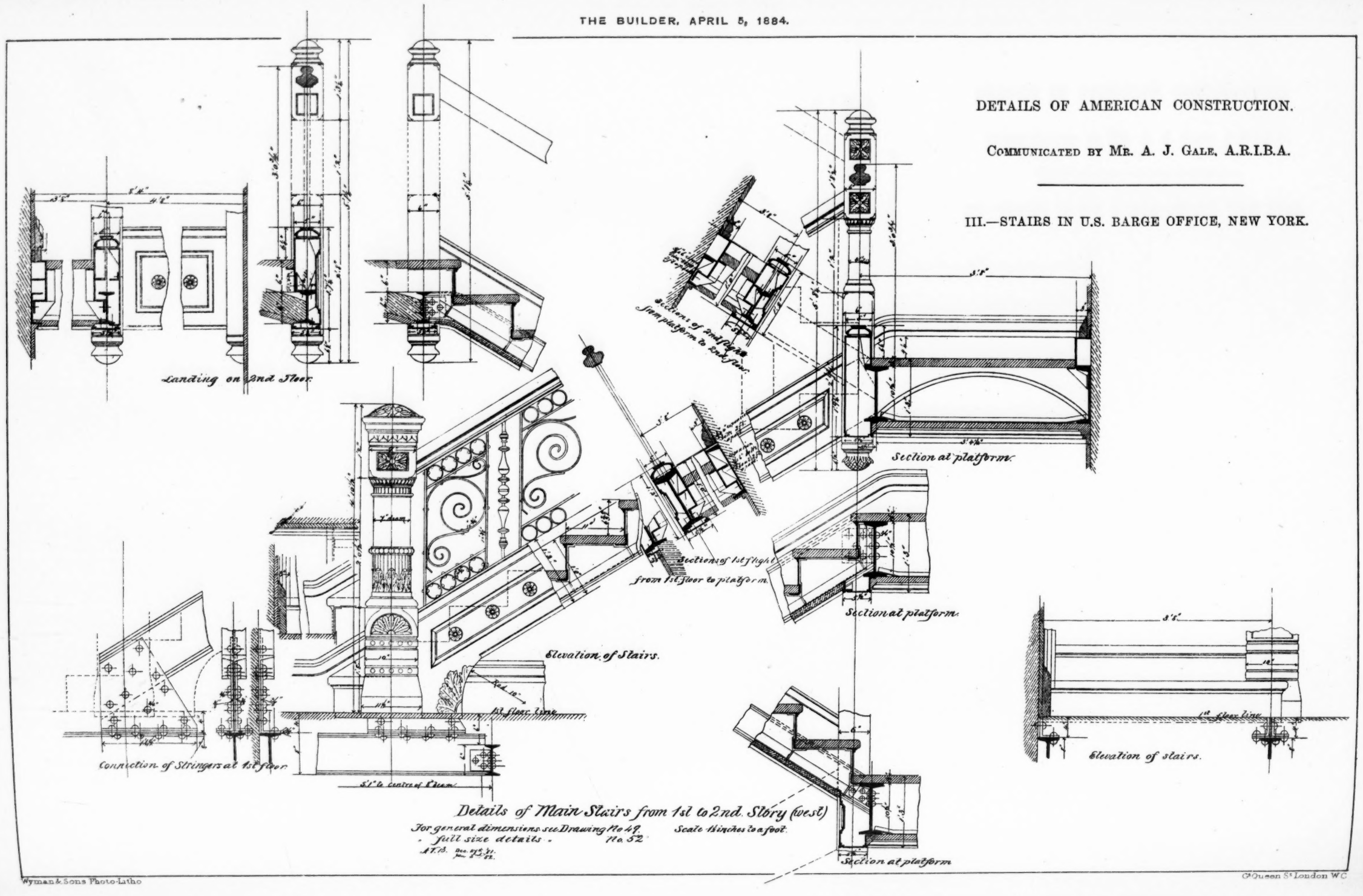
Vincent Brooks Day & Son, Photo-lith.

UPTON CONGREGATIONAL CHURCH—MR. T. L. BANKS, A.R.I.B.A., ARCHITECT.

DETAILS OF AMERICAN CONSTRUCTION.

COMMUNICATED BY MR. A. J. GALE, A.R.I.B.A.

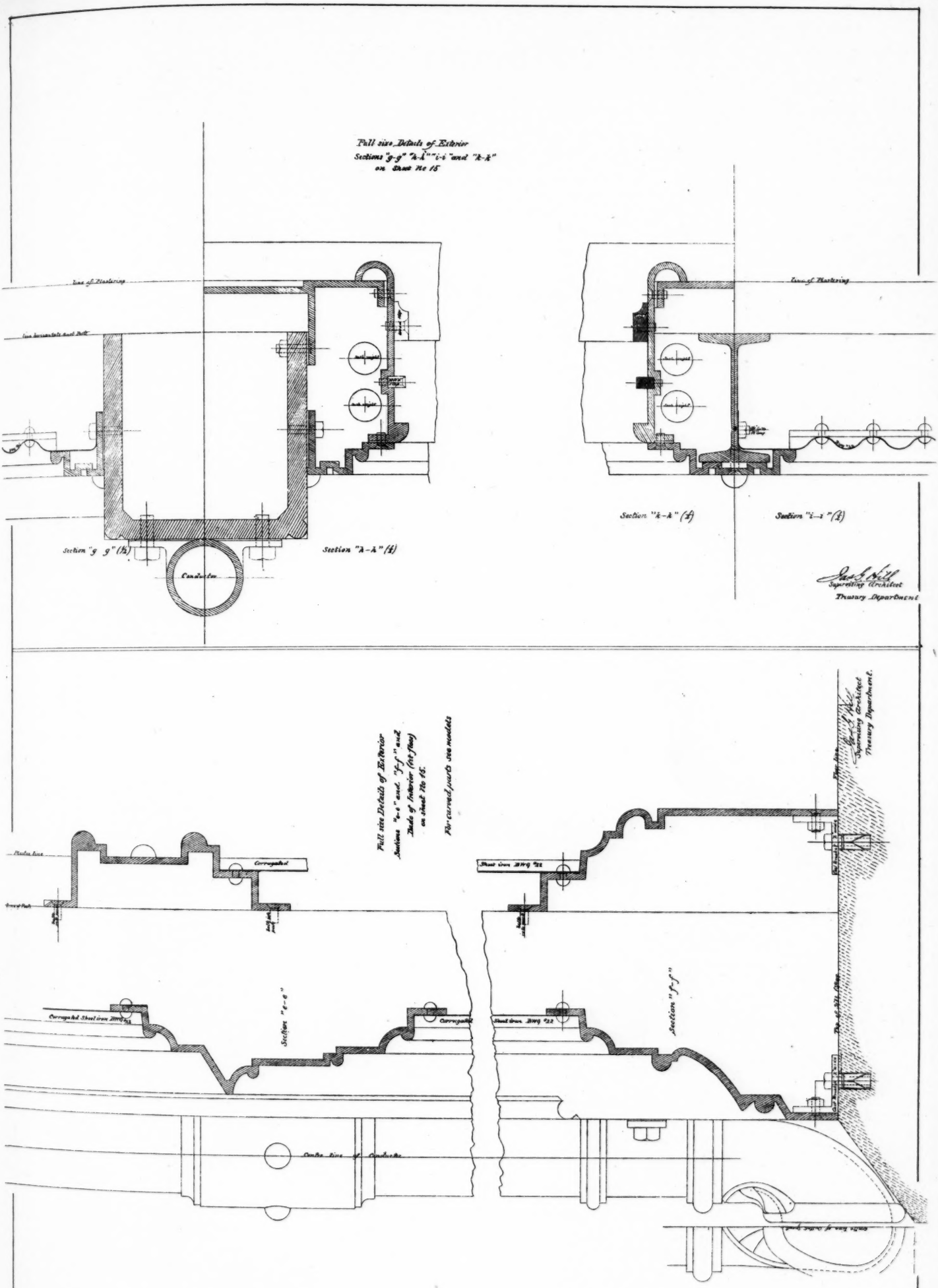
III.—STAIRS IN U.S. BARGE OFFICE, NEW YORK.


Landing on 2nd Floor
Elevation of Stairs.
1st floor line
Connection of Stringers at 1st floor.
Sections of 2nd flight from platform to 2nd floor.
Section at platform.
Sections of 1st flight from 1st floor to platform.
Section at platform.
Section at platform
Elevation of stairs.
1st floor line

Details of Main Stairs from 1st to 2nd Story (west)

For general dimensions see Drawing No 49. Scale 8 inches to a foot.
" full size details " No 52

Wyman & Sons Photo-Litho
G^t Queen S^t London W.C.



DETAILS OF AMERICAN CONSTRUCTION.—Communicated by Mr. A. J. Gale, A.R.I.B.A.

IV. – U.S. BARGE OFFICE, NEW YORK.

Wyman & Sons, Photo-Litho

C^t Queen S^t London, W.C

THE REGULATION OF THEATRES AND MUSIC HALLS.

A Bill has been introduced into the House of Commons, by Mr. Dixon-Hartland, to provide for the better regulation of theatres and music-halls within the metropolitan area. The preamble recites that the present system of double jurisdiction under which certain theatres are licensed by the Lord Chamberlain and the music-halls by the magistrates is inconvenient and unsatisfactory, and that it is desirable to place the entire control of such places in the hands of one officer of dignity and position. It is proposed to abolish the Acts of the 25th of Geo. II., chap. 36; the 2nd and 3rd Vict., chap. 47, sec. 46; and the 6th and 7th Vict., chap. 68, sec. 2, but the existing censorship of the Lord Chamberlain is to be retained. The entire control of all theatres and places of public amusement is placed under her Majesty's Secretary of State for the Home Department, who is to be empowered to frame such regulations as he may think fit for the establishment of decency and order, and to insure the safety of the public. The Home Secretary is further empowered to appoint a sufficient number of inspectors to survey and continuously inspect all places of amusement. Any person infringing the regulations is to be liable to a fine not exceeding 20*l*., and a further penalty, not exceeding 5*l*., for every day the offence is continued. A power of appeal is provided, but the tribunal to whom it is to be made is not stated.

The Act of George III., which it is proposed to repeal, is entitled, "An Act for the better Prevention of Thefts and Robberies, and for regulating Places of public Entertainment, and punishing Persons keeping disorderly Houses," and was passed in the year 1747. The second section recites that "the multitude of places of entertainment for the lower sort of the people is a great cause of thefts and robberies, as they [meaning the lower sort of people] are thereby tempted to spend their small substance in riotous pleasures, and in consequence are put on unlawful methods of supplying their wants and renewing their pleasures." In order to prevent these mischiefs, it is enacted that from and after the 1st day of December, 1752, any house, room, garden, or other place kept for public dancing, music, or other public entertainment of a like kind, in the cities of London and Westminster, or within twenty miles thereof, without a licence, shall be deemed a disorderly house or place. It is further enacted that every licensed house shall have an inscription in large capital letters that it is licensed pursuant to an Act of Parliament of the twenty-fifth of King George II., placed over the door or entrance. The two patent theatres and the theatre commonly called the King's Theatre in the Haymarket are excepted out of the Act; these theatres were the only theatres, properly so called, existing at the time of the passing of the Act.

The 46th section of the 2nd and 3rd Vict., cap. 47, which is proposed to be repealed, gives the Commissioners of Police power to enter any unlicensed theatres and to take into custody all persons found on the premises.

The Act of the 6th and 7th Vict., chap. 68, also to be repealed, repeals the Act of the 3rd of James I., chap. 21, entitled "An Act to restrain the Abuses of Players"; part of an Act of the 10th of George II., chap. 19, "for preventing the unlawful playing of interludes within the precincts of the two universities"; and another Act of the 10th of George II., chap. 28, entitled "An Act to Explain and Amend so much of an Act made in the Twelfth Year of the Reign of Queen Anne, entitled 'An Act for reducing the Laws relating to Rogues, Vagabonds, Sturdy Beggars, and Vagrants, into one Act of Parliament, and for the more effectual punishing such Rogues, &c., and sending them whither they ought to be sent,' as relates to common Players of Interludes; and another Act of the 28th Geo. III., chap. 30, entitled 'An Act to enable Justices of the Peace to license theatrical Representations occasionally under the Restrictions therein contained.'" This Act transfers the control of the theatres not being patent theatres within the Parliamentary boundaries of the City of London and Westminster and of the boroughs of Finsbury and Marylebone, the Tower Hamlets, Lambeth and Southwark, and also within those places where the sovereign shall occasionally reside, to the Lord Chamberlain, and gives him extensive powers for preserving order upon the stage and among the audience. The 12th section provides that no new plays or additions to old ones shall be produced or acted for hire in any theatre in Great Britain without the approval of the Lord Chamberlain; and by the 14th section the Lord Chamberlain is empowered, whenever he shall be of opinion that it is fitting for the preservation of good manners, decorum, or of the public peace, to forbid the acting of any stage-play or part of a stage-play anywhere in Great Britain either absolutely or for any such time as he shall think fit.

It does not appear to be the intention of Mr. Dixon-Hartland to seek to repeal the 11th, 12th, and 13th sections of the Metropolis Management and Building (Amendment) Act, 1878, 41 & 42 Vict., chap. 32, which give the Metropolitan Board of Works power in certain cases to require the proprietors of theatres and certain music-halls to remedy structural defects, and to make regulations with respect to new theatres and music-halls; nor the 45th section of the Metropolitan Board of Works (Various Powers) Act, 1882, which empowers the Board to require the means of exit from theatres, &c., to be kept open, and to regulate the conditions under which the doors may be closed, and the persons to be charged with the duty of closing and opening the same.

The second reading of Mr. Dixon-Hartland's Bill is fixed for the 29th of April next; the Bill has been blocked, and the second reading will be opposed by the Chairman of the Metropolitan Board of Works.

THE NEW WAR OFFICES COMPETITION.

The following is the official announcement of the First Commissioner of Works as to the result of the first competition:—

"The judges appointed to adjudge in the competition of designs for the new Admiralty and War Offices have selected nine designs from those sent in for the preliminary competition, the authors of which will be invited to compete in the second and final competition. The names and addresses of the authors of the selected designs are as follow:—

Messrs. Glover & Salter, Queen Anne-chambers, Poultry, E.C.

Messrs. Henry Hall & W. H. Powell, 19, Doughty-street, Mecklenburgh-square, W.C.

Messrs. Leeming & Leeming, Northgate-chambers, Halifax.

Messrs. Maxwell & Tuke, 29, Princess-street, Manchester.

Mr. Thomas Porter, Dulwich Wood Park, Norwood, S.E.

Messrs. Spalding & Auld, 91, Queen Victoria-street, E.C.

Messrs. Malcolm Stark, jun., & James Lindsay, No. 248, West George-street, Glasgow.

Messrs. Verity & Hunt, 27, Regent-street, S.W.

Messrs. Aston Webb & E. Ingress Bell, 19, Queen Anne's-gate, Westminster, S.W.

CREMATION.

At a meeting of "The Balloon Society of Great Britain" (a society the "platform" of which certainly seems to be of a strangely varied character), on the 28th of March,—Dr. Cameron, M.P., in the chair,—Dr. Comyns Leach read a paper on the subject of cremation, partly argumentative, partly practical and descriptive. Like others who came forward as pioneers in connexion with this method of disposing of our mortal remains, Dr. Leach seems a little *tête montée* on the subject; and we should have thought his paper more sensible and more to the point, as a whole, if there had been less of the rather sensational recounting of dangers actual or possible, but some of them certainly very little probable, from existing methods of burial. The danger of being buried prematurely, when life is not really extinct, we should imagine most medical men would agree in regarding as an imaginary one, except when gross carelessness may in a few instances (some of them, perhaps, of doubtful authenticity) have rendered that possible which should be impossible. Passing over, then, this destructive criticism in regard to existing methods, to which a disproportionate extent of the paper was devoted, we give the main substance of Dr. Leach's remarks on the proposed process and *matériel* of cremation:—

"Various furnaces have been proposed for the reduction of the body by fire. The furnace of Professor Gorini, of Lodi, is one that requires wood or coal only for its fuel, and therefore is well adapted for country places. The crematory furnace erected for the Cremation Society at Woking is on this model, and consists of a receiver, a furnace, and a high chimney. The furnace is placed in front of, and at a slightly lower level than, the receiver or crematory chamber, into the end of which it discharges its heat, the other end communicating with the chimney by which all the products of combustion, from the receiver as well as from the furnace, are removed. These highly-heated gaseous products have, in addition, to pass through a mass of burning coke at the bottom of the chimney, and any organic matter which may have resisted or escaped the first combustion are destroyed by the second, and mix harmlessly with the atmosphere. A second kind of furnace is the Siemens apparatus, used in Germany, and consists of an arrangement for the manufacture of gas, either from coal, peat, or wood, for the purposes of heating the furnace, a regulator, the furnace itself, and a chimney. The cremation is effected by heated air, in this way:—The gas, mixed with air in proper proportions, being lighted, passes through the piled-up firebricks of the regulator, and heating these to a white heat, it passes into the furnace or cremating chamber, whence, after raising it to a red heat, the flame escapes through the chimney. The body being then placed in the furnace, the gas supply is continued, according to circumstances, for a longer or shorter time, and then air alone is admitted into the regulator, whence, heated to red heat, it passes on to the receiver, and continues and completes the process. Dr. Wm. Siemens's regenerative furnace, as recommended by Sir Henry Thompson, affords a more rapid and complete combustion, and is thus described by him in connexion with the cremation of a body which weighed no less than 227 lb. Sir Henry says:—"The body was placed in a cylindrical vessel about 7 ft. long by 5 ft. or 6 ft. in diameter, the interior of which was already heated" (in the manner before described) "to about 2,000° Fahr. The inner surface of the cylinder is smooth, almost polished, and no solid matter but that of the body is introduced into it. The product, therefore, can be nothing more than the ashes of the body. No foreign dust can be introduced, no coal or other solid combustible being near it; nothing but heated hydrocarbons in a gaseous form and heated air. Nothing is visible in the cylinder before using it,—a pure, almost white, interior,—the lining having acquired a temperature of white heat. In this case the gases, given off from the body so abundantly at first, passed through a highly-heated chamber, among thousands of interstices made by intersecting fire-bricks, laid throughout the entire chamber, lattice fashion, in order to minutely divide and delay the current, and expose it to an immense area of heated surface. By this means they were rapidly oxidised, and not a particle of smoke issued by the chimney. The process was completed in fifty-five minutes; and the ashes, which weighed about 5 lb., were removed with ease." Other furnaces on this regenerative principle have been invented and described, but I think the above illustrations will be sufficient for my purpose. The one at Rome, already mentioned, I imagine to be somewhat after the plan of the model of the Manston Crematorium. Sir Spencer Wells describes it as follows:—"The building resembles a small cottage. There is no high chimney, and the furnace is a very simple oven of firebrick. The fuel used is wood only, and, at the cost of 6 francs, an adult body is burned in about two hours. No visible smoke, and nothing offensive, escapes from the chimney, as it is all consumed in a small coke fire at the lower part of the chimney, just as in the more perfect apparatus built for the Cremation Society of England."

The furnace in which the body of Captain Hanham, R.N.,—the first of English modern cremationists,—was resolved into thin air and harmless dust, was illustrated by a model exhibited to the meeting. It was projected and built by Mr. Thomas Richards, of the Wincanton Iron Works, a gentleman who, for many years, had devoted himself to improvements in the construction of kitchen ranges and other grates. The walls of the Crematorium are solidly constructed of brickwork, and the whole of the interior, which is subjected to the intense heat, consists of firebricks and lumps set in fireclay. The fireplace and the ashpit run from end to end, and the fire-grate is of ordinary

engine-bars. The doors of both fireplace and ashpit are so constructed that there is a space between the outside iron and the lining of fire-brick, and they are hung to outside iron frames.

The folding-doors to the cremating-chamber are of firebrick panels, framed in iron and strongly hung to two massive angle iron bands, which go entirely round the building; over these doors, and bolted to the top band, is a strong iron lintel, for the support of the superincumbent structure.

The roof over the fireplace, and the bearers for the coffin, are so arranged that the flames can come freely up from the fire without any risk of the ashes of the subject cremated falling through. Inlets are provided for the admission of thin streams of air, in order to perfect the combustion of the gases evolved, and to generate intense heat.

The roof of the cremating-chamber is arched from front to back, and is provided with three dampers, of fire-brick, to regulate the heat, and over the arch is turned a second, from end to end, to support the chimney. The chamber between these arches is provided with a door for cleaning, and a ventilator for the admission of more air, if needed, for the more complete oxidation of any gases that may hitherto have escaped combustion. At the back of the cremating-chamber are constructed other flues, which, when opened by means of dampers provided for the purpose, allow the flames from the fire to pass directly to the upper chamber; so that, by closing the flues into the cremating-chamber and opening these, the subject for cremation can be introduced after the apparatus has been heated. The chimney, although low, is of large size, with an exceedingly good draught, and was so constructed, because a tall chimney would have been unsightly in the grounds where the building is erected.

The building is plain in character, but might easily be made ornamental by the use of tiles, &c., if desired. If wished, a grating for burning coke at the time of the cremation could easily be constructed at the bottom of the chimney, as is the case at the crematoria at Woking and Rome. The cremation of the bodies of the two ladies took place on successive evenings in October in 1882, and, notwithstanding a few slight imperfections in the furnace as then constructed, and which have been remedied in the model exhibited, the process was most successful, it being carried out without the slightest nuisance to the neighbourhood; for during the whole time of the cremations, although the nights were damp and oppressive, with scarcely a breath of air, there was not the faintest trace of odour perceptible.

That the original object of cremation was sanitary, and not religious, is undoubted; that it became identified with heathen worship because, at the time of its adoption, everything was heathen, is surely no argument against it; if it is, the same might have been urged at one time against the burial of the body in the earth; and if we are to reject every practice that commends itself to our judgment, on the score of its being heathen, we should, to be logical, discard our classics from our schools, our Greek models from our studios, much of our jurisprudence from our law, and more of our philosophy from our literature. That cremation is too costly a process, especially for the poor, is a more real objection; but I hope to show that even this is easily refuted. That the first erection of the necessary apparatus and buildings would be expensive is true; but do we not, even in our villages, when the overcrowded churchyard necessitates the supplementary cemetery, with its chapel, its lodge, and its ornamental enclosures,—to say nothing of the waste of land,—incur a still greater expenditure? And, in any case, there would be the same cost of transit, and the expense of the niche for the urn would but little exceed the cost of a grave, and be far less than that of a vault, or even that horror of horrors, a "bricked-up" grave. There would be a still smaller necessity for an expensively-substantial coffin, and the leaden one would be for ever abolished. The actual cost of the fuel would vary with the neighbourhood; but, judging from the quantity used at Manston, it should not, in any case, exceed seven or eight shillings."

In the course of the discussion which followed, the Chairman said they must all feel much obliged to Dr. Comyns Leach for the very interesting and able paper which he had read to them. He was convinced that any one who thought seriously for himself must feel that the pain of parting with some dear friend was aggravated by the present mode of disposing of the dead. Those who objected to cremation should read the Blue Books issued on the subject of burials, which he was sure must create feelings of horror in their minds. Mr. Justice Stephen had just delivered an elaborate decision to the effect that cremation was not illegal. Sir William Harcourt, when questioned as to the course he would pursue in regard to cremation, did not attempt to explain the law on the subject, but said that it was repugnant to public opinion, and that he would interfere to prevent it if he had the power. As a matter of fact, however, he did not interfere when Capt. Hanham was cremated, neither did he in a recent case in Wales. The question of cremation had been very much before the public lately, and newspaper articles in the leading daily papers had spoken favourably of it, which was the true indication of the state of public opinion. The question was also to be regarded in the light of liberty, and it appeared to him that any attempt on the part of any of our executive departments to interfere with a practice which commended itself to many people in this country, and was not illegal, and which it was proved by experience in other countries was in no degree dangerous to public health, was not to be tolerated.

Sir T. Spencer Wells moved the following resolution:—"That in the interests of public health and national economy prudent statesmanship should endeavour to encourage the substitution of cremation for burial as the mode of disposing of our dead." He said that the profession to which he and Dr. Comyns Leach belonged were familiar with the great evils which attended the present system of burials in this country. They were constantly hearing of cases of disease which were to be attributed to impure air and impure water in the neighbourhood of burial-places in our large towns. The air became polluted and the water poisonous, and contained the germs of contagious disease. There was no doubt that the public health was endangered by the system of burials, which had become intolerable, and he felt certain that, unless there was some alteration or cremation substituted, there would be, sooner or later, such an outbreak of infectious disease as would far exceed the plagues which had been hitherto experienced.

Mrs. Hoggan, M.D., seconded the resolution, and after some observations in support of it from two or three other speakers,

A gentleman in the body of the hall proposed as an amendment, "That this meeting, in the interests of public health, will endeavour to promote the practice of cremation for the disposal of the dead."

The amendment was accepted by Sir Spencer Wells and Mrs. Hoggan, and carried unanimously.

BUCKFAST ABBEY.

As short a while ago as December last all the building that remained visible of this once-important Cistercian monastery consisted of what is locally known as the "Abbot's Tower," a four-storied building of Perpendicular character, erected, as it appears, at the south end of the "Domus Conversorum."

In the year 1806, before which time the abbey ruins were extensive, a modern dwelling-house was constructed upon part of the site from the building materials obtained by the destruction of the older work. At the same time the remaining parts were carefully levelled and covered over, so that all record of their existence appears to have been lost in the locality. One clue, however, was available, and this was a description of the ruins in the *Gentleman's Magazine* of 1796, written by Mr. Laskey, and quoted by Mr. Brooking Rowe, F.S.A., in a work on the "Cistercian Houses of Devonshire." The work of the uncovering was in the main guided by this description, and the foundations of the church were partially discovered from December 13 to 22 of last year, when, owing to the want of funds for prosecuting the work, further progress was for the time abandoned. In January, with a little more means at disposal, excavation was again carried on for a week, and this resulted in the finding of the greater portion of the church foundations, and part of the north cloister. In February, with the opportune and judicious aid of a grant of 20*l.*, made by the Society of Antiquaries, considerable progress was made, and the greater part of the foundations of the abbey buildings have been found, and more or less uncovered. These remains include the church,—a cruciform building, 217 ft. long by 63 ft. wide, measuring 94 ft. across the transepts; the sacristy, chapter-house, slype, fratry, refectory, kitchen, and other offices, as well as the "domus conversorum," all of which surround the cloister after the usual Cistercian plan, so well known to ecclesiologists from the writings of the late Rev. Prebendary Mackenzie E. C. Walcott, Mr. Edmund Sharpe, and others. The cloister garth measures 66 ft. in the clear, and is square.

This useful and interesting work is now again discontinued until further funds are available, these being much needed, in order that the large accumulation of earth arising from the excavations may be taken off the site, so as to enable the walls already found to be completely uncovered, and those of buildings conjectured to have been the abbot's house and the infirmary to be opened out. The desirability of removing the superincumbent soil from the area of the buildings is unquestionable, and a little help from archæologists and others interested in this good work of rescuing the remains of a noble and historic institution from complete disappearance would enable the digging to be completed during the present favourable time of the year.

Among other objects of antiquity which have turned up from time to time as the work progressed, are many highly ornamental embossed and glazed tiles, of very early character, and measuring about 9 in. square. Possibly if the church floor is cleared, others may be found in their original position.

SAVOYARD AND GRECIAN ARCHÆOLOGICAL REMAINS.

AT the meeting of the Historical and Archæological Society of Geneva recently, Dr. Gosse read a long memoir on excavations made during the past year in the Eagle and Fairy caverns in Savoy, near La Muraz. Although the results did not equal his expectations, he was able to state that the vestiges of man in these caverns went as far back as the bronze age. Near these caverns are places the names of which indicate a Roman origin,—Jovi, Jovenday, and Joux,—and not long ago they possessed Roman remains, unhappily destroyed by the peasantry, who have even lost interesting objects after obtaining them, and more particularly the fragments of a stone statue. Dr. Gosse was able to determine the site of what he believes to have been a primitive Christian church near the village of Naz, remains of which were *in situ* but thirty years ago. The altar of this church was broken up, and the fragments distributed in the houses of those who accomplished the destruction. One of the relics has been used for a long time as the table in front of the high altar of the church at La Muraz. It consists of a tomb of the eighth or ninth century, judging by its ornamentation, and it shows certain relations curiously between Arlésian civilisation and that of Switzerland. Several plans and drawings accompanied the memoir. Dr. Gosse also exhibited some remains collected in Valais, including bronze fibulæ and amber necklaces, from which he argued the presence of Etruscan influence in the earlier part of the iron age. He then dealt with the iron age in Tène, in the Canton of Neuchatel, and exhibited a number of Gallic relics, among others several swords remarkably preserved in their metal scabbards, as well as other instruments illustrating the civilisation of the period.

Monsieur Charles Morel presented the Society with a number of wood carvings, specimens of Grecian art; also with some sculptured decorations of tombs. These had formed part of the collection of M. de Sabouroff, formerly Russian ambassador at Berlin, who, during a long residence in Greece, made a large accumulation of antiquities, including statuettes, statues, relievos, bronzes, and painted vases. A description of the collection is in course of publication by Asher, of Berlin, in two editions, one in German the other in French, illustrated by 150 magnificent engravings, accompanied by the text, and by criticisms from the pen of Dr. Furtwängler. Six volumes of the fifteen to be published have already been issued. M. Morel

spoke upon the exterior form of Greek funeral ornaments, the nature of their decorations, and their state of artistic development.

THE CRYSTAL PALACE ELECTRIC AND GAS EXHIBITION.

AWARDS OF THE JURY OF THE GAS SECTION.

WE have been asked to publish the following official account of the awards of the Jury in the Gas Section of this Exhibition. We take the opportunity of mentioning what we have once or twice intimated in our "Correspondence" column to individual writers, that we are obliged to decline publishing announcements of awards of this kind except when thus communicated officially.

GAS BURNERS.—*Recuperative*,—Gold Medal for the Grimston Regenerative Gas Burner. (Exhibited by G. Bower.) Gold Medal for F. W. Clark's Regenerative Gas Burner. (Exhibited by the Portable Gas Apparatus Co.) [Bracketed as equal.]

Multiple Argand.—Silver Medal for Sir James N. Douglass's Burner. (Exhibited by the Improved Gas and Oil Burners Co., Limited.) Silver Medal, William Sugg & Co., Limited. [Bracketed as equal.]

Flat flame with Governors.—Silver Medal, William Sugg & Co., Limited.

Flat-flame in Lanterns.—Silver Medal, William Sugg & Co., Limited.

Incandescent Burners.—Silver Medal for the Clamond Burner. (Exhibited by E. Servier.) Silver Medal for the Lewis Burner. (Exhibited by G. Bower.) [Awarded to these two in recognition of novelty of principle.] Silver Medal to Albo-Carbon Light Co., Limited, for their method of increasing the illuminating power of gas.

COOKING STOVES.—Silver Medals to H. & C. Davis & Co., J. Wright & Co., General Gas Heating and Lighting Co., Limited, and Messrs. Waddell & Main, who are mentioned in order of merit. Also a Silver Medal to Strode & Co. for their summer and winter stove. This stove is also applicable for heating purposes as a reflector stove.

CLOSE HEATING STOVES.—Silver Medals awarded to Messrs. John Wright & Co., the General Gas Heating and Lighting Co., Limited, and William Sugg & Co., Limited, named in order of merit.

OPEN HEATING STOVES.—*Asbestos Fuel Stoves*.—Silver Medal to West Brothers.

Tile Stoves.—Silver Medal to General Gas Heating and Lighting Co., Limited.

Reflector Stoves.—Silver Medal to Strode & Co. (see above), for summer and winter stove.

INSTANTANEOUS WATER HEATERS.—Silver Medals to William Sugg & Co., Limited, for Therma Heater, and Strode & Co., named in order of merit.

GAS GOVERNORS.—Silver Medal to James Stott & Co.

GENERAL AWARDS.—*Diploma of Honour* to George Glover & Co. for the general excellence of their Exhibits. *Diploma of Honour* to W. Parkinson & Co. for the general excellence of their exhibits. *Silver Medal* to Pintsch's Patent Lighting Co., Limited, for their gas apparatus. *Silver Medal* to Thompson's Smokeless Kiln and Oven Co., Limited, for their kiln. *Silver Medal* to the Portable Gas Apparatus Co. (F. W. Clark) for their apparatus for the manufacture of gas. *Silver Medal* for Fletcher's apparatus for the application of gas to heating purposes. (Exhibited by Deane & Co.)

The jurors were Captain Douglas Galton; Mr. Robert Harris, Mem. Inst. C.E., Engineer to Gas Light and Coke Company; and Dr. W. J. Russell, F.R.S., Professor of Chemistry, St. Bartholomew's Hospital.

PICTURE EXHIBITIONS.

WE have only space to note briefly the contents of Mr. Wallis's gallery, which opened this week for the annual spring exhibition, and in which the very best painting is a cattle picture by Van Marcke (17), which is exceedingly fine in its way. But we look for something of higher interest as the chief picture in this gallery; and Echtler's "La Ruine d'une Famille" (102), though a pathetic work in feeling, is not of the highest order of execution. Heffner's landscapes seem to show that a certain degree of mannerism, which his finest works have not been without, is increasing upon him; witness the artificially-contrived parallel lines in the foreground of No. 25 (no title). Meissonnier is represented (19), not quite at his best. The best of the other works are by Fromentin, Seiler, Joanowitz, Spring, and others. A life-size "portrait," by F. H. Kaulbach (136), has fine qualities, not carried out altogether in the other examples of his work in the upstairs room.

The Society of British Artists contains one remarkable painting, the nude study, by Mr. Hill, under the title, "The Shell" (491), a small picture of a girl lying on the sea-shore holding a shell to her ear. A more living and breathing figure of the kind one does not often see. The exhibition, as a whole, is about up to the usual mark. Among things above the average are Mr. E. Ellis's "In Fold" (120), a powerful landscape; Mr. Cauty's "Coming Events" (153); Mr. Henley's "Albert Dürer's Commission" (292). The catalogue is embellished with very nice illustrations, in some of which (No. 246, for instance) the design produces a much more favourable effect when shown in black and white only.

INTERNATIONAL EXHIBITIONS.

IN the course of a lecture on this subject by Mr. Forbes Robertson, delivered last week at a meeting of the "Society for the Encouragement of the Fine Arts," the lecturer remarked that they are no new things, and affirmed that their prototype is still to be found in the great fairs of the East, which are wonderfully all-embracing, and quite international in their character.

In referring to the Fine Art Exhibition of Munich, he praised with considerable emphasis the figure-work of Piloty and the landscapes of Heffner. In the International Exhibition of Black and White at Vienna, he found, on the whole, that the Americans were the most picturesque wood-engravers in the world, the French *facile princeps* in etching, and not to be excelled in engraving. At the same time he regarded the Madonna Sistina of Professor Mandel, and the School of Athens, by Professor Jacoby, as two of the greatest masterpieces in pure line which modern times have produced.

Among the gentlemen who took part in the discussion were Messrs. Cave Thomas; Edmeston, president of the society; Collins Levey, C.M.G.; and the chairman, Mr. Storey. The lecture-room was decorated with a dozen engravings of the highest art quality from the Fine Art Society of Vienna, which is devoted entirely to the reproduction of famous works of art. A beautiful proof of Mandel's Madonna hung on the walls.

LIVERPOOL ENGINEERING SOCIETY.

THE sixth meeting of the session was held on Wednesday evening, March 26th, at the Royal Institution, Colquitt-street, the President, Mr. R. R. Bevis, junr., in the chair, when a paper was read by Mr. W. A. Carver, entitled "Estuaries." The author, in opening his paper, dealt with the importance of the estuary in maintaining a channel of sufficient depth for ships; the rise and fall of tide, with its velocities at the surface and at the bottom, giving various data as to the Mersey. He then alluded to the depth of the bar at Liverpool, showing how the variations were due to special causes in the Estuary, giving the quantity of solid matter held in suspension. He also described various alterations in the Dee, Tees, and Ribble.

BRISTOL JUNIOR ARCHITECTS' SOCIETY.

THE opening meeting for the season of this Society was held on the 29th ult., the building chosen for a visit being the remains of the Bishop's Palace, Bristol Cathedral. In response to the request of the Society, Mr. W. E. Hill (late hon. sec., and the author of the prize essay of the Society upon the Cathedral), acted as guide on Saturday. The history of the monastery and bishopric, so far as it concerned and affected the Palace, was very ably described by Mr. Hill. After listening to a full description of the beauties of the Abbot's Gateway, the visitors were conducted through the existing portions of the old passages formerly communicating with the Palace, and the interesting ruins of the palace itself were the subject of a very lucid description by the guide. After having pointed out the traces of the Norman building and the succeeding Perpendicular one, Mr. Hill drew the attention of the Society to the groined chamber, which he considered to have been a dungeon or place of confinement, his opinion being based upon very explicit foundations. This apartment was, no doubt, one of the earliest portions of the monastic buildings, being Early Norman in character, similar to the Abbot's Gateway, containing two columns of slight dimensions, having cushion capitals, the base of the columns being hidden by the ground having been made up for some later necessities. The windows opening in this chamber were Perpendicular in character, and very probably inserted by Abbot Newland. The remains of the entrance to the Palace and also to the chapel were described in detail. In concluding a very able and interesting paper, Mr. Hill hoped that the visit of their Society would tend to attract more attention to the ruins than they at present enjoyed; very few of the public were aware of the very interesting remains still existing. This was, perhaps, due to the little encouragement given by the authorities of the cathedral to visitors.

RESTORATION AND ANTI-RESTORATION.

WE have been asked to publish the following correspondence:—

The Society for the Protection of Ancient Buildings,
No. 9, Buckingham-street, Adelphi, W.C.,
February 12, 1884.

To Henry Hucks Gibbs, esq., Aldenham House, Watford.

SIR,—The Committee of the Society for the Protection of Ancient Buildings having seen the announcement of your munificent proposal to restore or complete the high screen at the back of the altar in St. Alban's Cathedral, beg leave to present the following points for your consideration.

Though the screen has suffered, like all such parts of our ancient churches, chiefly by the destruction of the images, there is still so much remaining that it is strictly a Mediæval work.

When we think of so many churches which had only a few years back equally good remains of Mediæval art, which have since been, for all artistic and antiquarian uses, utterly lost, in the mistaken attempt to recover for them what was, in fact, irrecoverable, we cannot but think St. Alban's Church is highly fortunate in possessing this beautiful original screen, and we cannot let the announcement of its intended restoration go by without offering you our experience of what so-called restoration is. We beg you will credit us in doing this with the same motives which led you to undertake the work.

Restoration is commonly a two-fold destruction. There is, first, the positive material alteration of ancient surface which is caused by cleaning, retooling, and the general smartening up is always one of the objects of restorers; and there is the not less effectual destruction of Mediæval aspect which is caused by the substitution for lost features modern productions, supposed to be Mediæval.

That "restoration" does, in fact, destroy, and not restore, is now well understood; but, unfortunately, the truth is only admitted with regard to works that are done, and is seldom allowed to prevent the beginning of new works of the same kind.

We suppose that the contemplated restoration of the screen will be partly a cutting-out of broken members, and the substitution of new worked stone to make the design continuous, and partly, but mainly, the filling of the vacant niches with new sculpture in the style of the fifteenth century. As this last is by far the most important part of such a scheme, we will address ourselves chiefly to it, in the hope that you may be induced to reconsider your offer from this point of view,—that the hopelessness of any restoration worthy of the name may be for the whole established.

The imitation of lost styles of art is practised in the belief that art is a mechanical trade, having certain rules and fashions which, once learned, will enable the practitioner to turn out works in this style or that according to order.

There is another theory of art that makes it an unrestrainable expression of the active imagination and of the sympathy with natural beauty which are developed more or less, at various times, by the social condition of a people. If this last view has any truth,—and we do not see how ancient art can be accounted for by any theory very different to that,—the art of one time cannot be simulated by that of another. If art be not genuine, no attempt to replace it by scientific cunning will produce anything but a sham; and nobody can suppose that the tribe of modern Mediæval carvers is animated by the feelings, the social influence, and the unbroken tradition which surrounded and impelled the carvers of the fifteenth century.

Mediæval carvers, moreover, were by all consent very skilful, and we know that their best men were occupied on church work, and on details now thought beneath the dignity of a sculptor. We do not think any one believes that modern sculpture is a flourishing art. No one takes any real interest in it, and it quite deserves the neglect it receives. Still, such as it is, its best paid professors do not condescend to carve images for a screen, and only those who cannot obtain recognition as sculptors apply themselves to the trade of "Mediæval carving." It is, then, to the skill of the lower members of a group of unimaginative and mechanical artists that you will have to look for the reproduction of a series of figures which no longer exist, but which, when perfect, must have represented the best work of a still great and original school of architectural sculpture,—a school capable by its meanest members of doing infinitely better than any work it has been our lot to see of modern times. It would be a great misfortune, always to be regretted, if another fine work of the Middle Ages were marred by the introduction of modern additions quite out of harmony with it in all essentials of good sculpture.

That it will be so marred if the process called "restoration" be practised upon it is made sure by all the experience we have had of similar restorations elsewhere.

We beg most earnestly you will give full weight to every consideration which leads you to hesitate before finally resolving on a work which, when done, cannot be recalled.

We would not, however, wish to deprive St. Alban's Church of the goodwill you have so largely shown by your offer, and we will ask leave to point

out that a church so large as that stands in need of constant supervision and repair. Money will always be needed, and it is possible, when the present enthusiasm for restoration is passed, it may be difficult to provide the funds for those necessary attentions which a building cannot, in fact, do without. A fund large enough to provide for the regular payment of one or two masons and a plumber ought to be attached to the building, to ensure the immediate repair of any defect, and to keep the building always sound and weathertight.

I remain, sir, yours faithfully,
THACKERAY TURNER, Secretary.

Aldenham House, near Elstree, Herts.
March 5th, 1884.

SIR,—I have received your letter of the 12th ult., and find much in it with which I can agree, but much also which appears to me to be written without a perfect knowledge of the case in question.

"Restoration," so called, has no doubt been frequently synonymous, or nearly synonymous, with "Destruction." The "smartening up" of which you speak is detestable; and all alteration of ancient surface is greatly to be deprecated. So far I agree with you.

But I think your Society should take into account that it is quite possible for others to feel quite as strongly on these points as its members do, and to have at least as great a reverence for antiquity and true art as they have, and yet to desire to repair the ravages of ignorance and superstitious folly, and to replace what mischievous hands have destroyed.

You suggest the provision of a fund for the repair of the Abbey of St. Alban. I am glad to say that such a fund is already (prospectively) provided. But what *is* repair? I fail to see where the line is to be drawn.

If a wall may be repaired, why may not the windows that are in it? If the windows, why not their mouldings? If the mouldings, why not the enrichments of the mouldings, such as those in our Lady-chapel? And if these, why not also a pinnacle or a canopy which may have been ruthlessly sawn or broken off, and for which we have the exact models before us?

That is what I am doing at St. Alban's. Nothing that is old will be made to look new; nothing that is new will be "supposed to be Mediæval." The old portion of the screen will show its age, and the new will show its newness; and though I have no fear but that it will be as good as that which it replaces, I do not expect that any but the ignorant or heedless will imagine that both portions are of the same age.

The remainder of your letter is directed to dissuade me from filling the niches with "new sculpture in the style of the fifteenth century. . . . in imitation of lost styles of art."

Your Society seems to me to be in error, first in assuming that in such works there is universally an intention of imitating or copying something; and, secondly, in assuming that this present age neither has produced nor can produce any one who possesses those qualities which, as you rightly imply, are necessary to the conception and execution of such sculpture, viz., "active imagination and sympathy with natural beauty," and (you might have added) with the religious aspect of the work.

The screen I do propose to *restore*, for my intention is that the existing models should be precisely followed by carvers as able as those who carved those still-existing parts which serve as models; but I have no thought of "restoring" the statues. It is impossible to do so, for I do not know what they were. Those I shall place there must not, indeed, be incongruous with the fifteenth-century work in which they will stand; but I see no reason to apprehend that they will be copied or imitated from any other work, still less that they will be as you without any warrant assume, "out of harmony with the screen in all the essentials of good sculpture."

I have appointed a man to the work who, as I believe, is informed by the same spirit as that which actuated his predecessors in the art. He, to use your own words, "occupies himself in details thought by many sculptors to be below their dignity," and in no way deserves to be ranked as you, no doubt in ignorance, rank him, with "the unimaginative mechanical artists" to whom you refer.

The figures which he will place in the niches may be better,—or worse,—than those which formerly occupied them,—we have no means of comparison; but they will be certainly original, and, I have no doubt, worthy of their place. They will serve to correct the "experience" of which you speak, and which, however justly it may have judged as to some of the works which have come under your observation, would have been, so I venture to think, corrected already if your Society had brought less prejudice and more accuracy of observation to its aid.

I take for granted that you wish the views of your Society to be publicly known, and, as I have no objection to allowing a like publicity to mine, I propose to send this correspondence to the papers.

I am, yours faithfully,
HENRY H. GIBBS.

To the Secretary of the Society for the Protection of Ancient Buildings.

The Society for the Protection of Ancient Buildings,
No. 9, Buckingham-street, Adelphi, W.C.

Re the High Screen, St. Alban's Abbey.

To Henry H. Gibbs, esq.

SIR,—The restoration of the screen at St. Alban's is of so much public interest that we heartily concur in your proposal to publish what we have written, but as your reply puts to us several questions which ought not to remain unanswered, we will beg you to print this letter at the same time.

You ask what is the repair we sanction, and where the line may be drawn between the repair of a cracked wall or a weak foundation, and the renewal of every broken crocket or displaced statue.

Certainly, in the way you put the question, there is nothing to stop the triumphal march of the restorer, once admitted to a building for the repair of a buttress or a roof, until he has scraped the last stone, re-carved the last inch of moulding, and corrected everything that to his mind is either inconsistent or imperfect.

The Society for Protecting Ancient Buildings is not so foolish as to admit of a principle which leads to this. The repair it asks for is, firstly, of the preservative kind, which prolongs the life of a building by stopping the inlets of decay: not by constantly renewing this part and that, but by keeping all parts in sound and healthy condition. When serious defects have to be dealt with, then it considers how they may be remedied with least loss of ancient work.

It has no pleasure in patching and renewing, and when such severe remedies are beyond denial, it would always do the least possible, and that in the most direct and unpretending fashion, even if in so preserving the old it might offend modern notions of perfection and beauty.

Between the Society and the restorers there is, then, this wide distinction,—that we would never substitute a new stone for an old, unless the safety of a building required it, and every such change would be made with the deepest regret.

This difference of temper between us, instead of leading to all that you think is implied in the word "repair," would be a constant check to the rash and ignorant zeal which pulls down first, and then considers what is to be done. Moreover, it allows of no repair which is not structural and essential to the preservation of the building.

The replacing of ornaments which "mischievous hands have destroyed" cannot be justified by reasons which make repair of the fabric a duty.

Such replacements (if, indeed, it were wise or possible to make them) would be prompted by reasons which, without any offence, we should call sentimental. On this ground there is room for wide diversity, and on one side we cannot but think great weight is due to the feeling that the history of a building like St. Alban's is sacred, even though in some respects it may be painful.

The spectacle of what "ignorance and superstitious folly" have done, and may do, is not without significance even in a church, and the lesson it teaches has always to be learned. This, however, we must not do more than hint at; we may say more boldly of the restoration of the defaced tabernacle work, that our previous remark is not touched by your reply. The restoration of that must be the destruction of the remains that now exist, and when they are gone there will be no evidence to the next generation that your "restoration" is really a copy of the ancient design, and is not,—like that of All Souls' College, Oxford, for instance,—a modern rearrangement.

Of your ability to restore either the tabernacle work or the statues, we have still the opinion which has been formed by many years' intimate acquaintance of the best that has been done in both kinds. You may, perhaps, have found an unknown carver "informed with the same spirit as his predecessors" of the fifteenth century,—endowed, that is, with the fruitfulness and knowledge a wise association for mutual help gave them in the application of natural principles to the development of a consistent and beautiful architecture; he may be heir to this spirit, and amidst all the deadening influences of an unsympathetic time of isolated work and competitive prices, may have cultivated the precious seed of Mediæval art, to burst once more into bloom over this ancient screen; but we think all the conditions for such development are wanting in the nineteenth century. We do not see it in the statues which disgrace the west front of Salisbury, nor in the sculpture now going on at Westminster. We deny the possibility of it so long as workmen are not artists, and masters little better than tradesmen.

Permit us to add that we deeply regret the determination your letter conveys.

I remain, sir, yours faithfully,
THACKERAY TURNER, Secretary.

St. Dunstan's, Regent's Park.
March 13th, 1884.

SIR,—I have received your letter, without date, but which I suppose was written yesterday.

I have only to observe that my plea for true restoration does not, as you suppose, justify "scraping the last stone or recarving the last inch of moulding." Recarving and scraping are not only objectionable, but are nowadays justified by nobody; but when *new* stones have to be used, it is surely permissible to carve them.

You have misapprehended one part of my letter, probably from imperfect acquaintance with the screen itself. The restoration of the tabernacle work does *not* involve "the destruction of the remains that now exist." None which now exist will be destroyed or removed, but they will serve as working models for the corresponding parts which have been destroyed.

One word on behalf of the workmen, on whom you rashly pronounce so universal a condemnation. I have known working carvers who are true artists, and very many who are as competent as those of their class in any other age, to execute such works as those under discussion.

Your Society believes that there do not exist architects capable of directing or workmen capable of executing such works. I must take leave to think that the opinion of the great majority of educated men is against you.

Yours faithfully,
HENRY H. GIBBS.

To the Secretary of the Society for the Protection of Ancient Buildings.

GIBBS & FLEW (LIMITED).

THE profitable character of building operations, when conducted on sound principles, is illustrated in the experience of this company. Established as a private business in the year 1876, it was converted in 1882 into a public company with a capital of 100,000*l.*, and last year the capital was increased by private subscription to 250,000*l.* The report and accounts for the year 1883 were submitted and adopted at a meeting held on the 27th ultimo. They showed a net profit of 47,365*l.* 7s. 6d., and a dividend was declared at the rate of 12 per cent. per annum, which, with the interim dividend at the same rate paid in July last, will absorb a sum of 18,176*l.*, leaving a balance of 29,189*l.* A sum of 25,000*l.* has been placed to the reserve fund, and the remaining 4,189*l.* carried forward.

The following extract from the report may be interesting to our readers as showing that under proper management the realisation of profit from building speculation is compatible with good work, even in the smaller class of tenements which are too often the special field of operations of the jerry-builder:—

"Shortly after the constitution of the present Board there seemed indications of over-building not only in the neighbourhood of the company's estates, but throughout the metropolitan area, and the directors considered it prudent to curtail their building operations; but as the demand for the company's houses has of late been largely in excess of the rate of production, the directors have, since the beginning of the present year, increased their operations to meet the demand, and there have been indications of considerable improvement not only in the increased rentals of the company's houses, but also in sales.

The directors have felt the desirability of building the company's houses in the most approved manner both as regards solid workmanship and high finish, a policy which, though not giving so large an amount of immediate profit, must obviously result in ultimate advantage to the shareholders.

The sales of houses, ground-rents, and land during the year amounted to 69,477*l.*; 214 of the company's houses were let through their offices, at an aggregate rental of 10,741*l.* 18s., in addition to which there were let, also through the company's offices, on commission, 245 houses upon the various estates belonging to the company.

Notwithstanding the general complaints of the difficulty of letting houses, the demand for those on the company's estates is steadily increasing, and applications are being continually received from a most desirable class of tenants. During the year 1882 the number of lettings was 366, and in 1883 the number was 459, and during the ten weeks from the 1st of January to the 10th of March of the present year, there have been let 131 houses, a number which, it is believed, is unprecedented in the history of any building firm in England. If the lettings are continued at this rate during the present year, of which there is every prospect, the rental of the company will be increased upwards of 20,000*l.*"

The explanation of the large profits realised from building operations carried on in the spirit indicated in the foregoing extract is in part furnished by the following statement taken from the prospectus circulated with the last issue of shares:—

"1st. Messrs. Gibbs & Flew have purchased their own freehold estates, and possessing all the appliances and organisation for developing the properties, have not only made the builder's profits upon the houses, but also the profits on the land and ground-rents, which are generally the great source of profit, and usually realised by the Freeholder.

2nd. The estates have been judiciously selected, all being in the Western and South-Western Dis-

tricts, which are gradually increasing in value, by the natural growth of London in that direction.

3rd. The whole of the estates are on gravel soil, and are well drained.

4th. The houses erected have been of moderate rentals (ranging from 30*l.* to 100*l.* per annum), well built, and adapted to the requirements of the neighbourhood, in consequence of which there has been a continuously-increasing demand for them.

5th. Messrs. Gibbs & Flew owned their own brickfields, extensive steam saw-mills, joinery, stone, and marble works."

It is by such concentration of work and of material resources that it is possible to make profits on a system which shall be equally just and satisfactory to the shareholders and the public.

ORIENTAL SCULPTURE

Sir,—May I be permitted, on my own behalf and on the behalf, I am sure, of many other readers of the *Builder*, to thank you for the full and excellent reports of the series of lectures at the Royal Academy on the above subject? It is, indeed, a great thing to at last find the subject,—so lavishly illustrated by our national collections, but hitherto only known and studied by a small body of specialists,—receiving such full and able treatment at the hands of the recent lecturers before the Royal Academy. There are one or two points in Mr. Poynter's admirable lecture on which you will, perhaps, kindly allow me to add a few words, not by way of criticism, but in order to elucidate matters which only a knowledge of the cuneiform inscriptions make clear.

It is with great pleasure that I find Mr. Poynter endorsing the ideas which have been already expressed in your columns as to the marked difference between the art of ancient Chaldea and that of Assyria in the treatment of the human form, and his apt simile drawn from the contrast between Nubians and Arabs is one which will be of great value. The few statues which we have, both from Assyria and Chaldea, such as the figures of Nebo from Nimroud, the statue of Assurnazirpal, only but one degree removed from a bas-relief, a figure of Istar from Nimroud (unexhibited), and the early examples from South Chaldea, are all hideously void of all elements of beauty, nobility of form, or anatomical correctness. The reason for this, or, at least, one reason, is very clearly brought out by the study of certain inscriptions in the British Museum relating to the dedication of statues of the gods.

In the inscription of King Agûkakrimi, who reigned in the fourteenth century B.C., the king states that he brought back the statues of Merodach and Ziratpanit which had been carried away, and that he dedicated to them, for festal attire, "blue robes, striped robes, variegated robes, and horned crowns of gold." So also in the tablet relating to the dedication of a statue of the Sun-god in the temple at Sippara by Nabuabaliddina, about B.C. 1000, do we find mention of a complete set of festal robes for the statues of the Sun-god and his consort. That it was the custom to clothe the statues of the gods and goddesses at a very remote period is proved by the rubric attached to the celebrated tablet describing the descent of the goddess "Istar into Hades," where the robing of the statues of Istar and Tammuz Adonis are fully described.

This custom had its origin, no doubt, in the decoration with coloured cloths, garlands, &c., of the earliest statues of the Asiatic mother goddess. These were conical stones like the batoilæ of the Phœnicians and Pre-Islamic Arabs, the Asherah and sacred fir-trunks of the Phœnicians and Phrygians, and these rude unartistic figures of prehistoric time exercised no doubt a restrictive power on the art of future time.

In his Primer to Homer, Mr. Gladstone has pointed out that the only statue of a goddess mentioned must have been a seated one, as the veil offered was placed on the knees.

The seated figures of divinities were distinctly of Chaldean primitive origin, and as such were derived from the kingly office of the gods,—the ancient pictorial ideograph of a king representing a "Man seated on a Throne." This seated form of statue passed from Chaldea to Assyria, appearing in the statue of Assurnazirpal of the Middle Empire, but not later. It was, however, adopted by the Asia Minor and Syrian races who came in contact with the early civilisations of Chaldea. Thus we find it adopted in a bas-relief of the Asiatic goddess or a queen at Eyuk in Phrygia,* and on cylinder seals which have been found in North Syria, and which were, no doubt, of Hittite origin.

Though this form does not appear to have been adopted in Assyria after the time of the Middle Empire, it was retained in Babylonia, as is shown by some statues found at Borsippa and Aboo Hubba by Mr. Rassam, which date from the time of Nebuchadnezzar, and which are probably contemporary with the figures from the sacred way at Branchidæ.

In one great branch of art, namely, that of symbolism, the artists of Chaldea exercised great influence on the Greeks and their Phœnician instructors. On memorial stones from Aboo Hubba, now exhibited in the British Museum, we meet with the winged Pegasus, the scorpion Sagittarius, the serpent-limbed figures, like those in the Gigantomachia from Pergamos, the two-headed Cerberus, and Gryphons of many forms, while Heabani, the Satyr companion of Gisdhubar, became the type of Pan and his fellows.

There are some other points on which I would like to trespass upon your space, but I will not now deal with them. I would, however, mention that the handbook for the Nimroud gallery of the British Museum is in preparation, and others will follow, thus meeting the wishes of your correspondent of a few weeks ago. I intend after Easter to commence a series of lectures on Assyrian and Babylonian antiquities in the galleries of the British Museum, to be illustrated by the monuments there exhibited, and I shall be glad to hear from any who may wish to join these classes.

W. St. C. Boscawen.

*** Letters on this subject may be addressed to Mr. Boscawen, to Box 99, Office of the *Builder*.

* Perrot et Guillaume, "Voyage en Galatie," &c., pl. 66.

"A WOULD-BE ACADEMY STUDENT'S DIFFICULTIES."

Sir,—Will you permit me space to thank Mr. Spiers for his valuable answer to my inquiry; to apologise to him if my view of his reception be a mistaken one; and to respectfully assure him that his surmise concerning the Travellers' Club House is incorrect? Improbatus.

OLD MORTAR.

Sir,—Would some correspondent of practical experience oblige by saying whether new mortar would be improved, or otherwise, by mixing old mortar ground up with fresh, in the proportion of 1 of old mortar to 3 of fresh lime and sand.

Dubious.

COMPETITIONS.

Home for Incurables, Carlisle.—The design of Mr. Geo. Dale Oliver, of Carlisle and Workington, has been selected in a recent competition for the New Home for Incurables about to be erected in Carlisle.

Leicester Corporation Estate.—At a meeting of the Leicester Town Council on the 25th ult., the Estate Committee reported that, as authorised by the Council, they had advertised for competitive designs for the utilisation of building site on the south side of the new entrance to the Market-place, and 32 designs had been sent in. The selection of the designs had been in the first instance, as required by the instructions to architects competing, entrusted to a sub-committee specially appointed for the purpose, and who had reported to the Estate Committee thereon, after very full consideration of the designs with the borough surveyor (Mr. Gordon). The committee, having considered the report of the sub-committee, made selection of two sets of designs, namely, Nos. 23 and 26, which they now submitted to the Council for final decision.—Ald. Stretton moved the adoption of the report. He was sure the Council would agree with him that they were deeply indebted to the 32 gentlemen who had sent competitive designs for the building which they proposed to erect on the triangular piece of land in Horsefair-street. Each of the plans had received the very careful consideration of the sub-committee to which they were entrusted, and the plans were voted upon separately; and the result was arrived at without bias or favour. He had not the slightest idea of the name of any competitor.—Alderman Winterton having seconded the motion, Councillor Millican (an architect) said he should like to ask by whose instructions the designs were marked "first" and "second," because he thought that the Estate Committee had only to make selections to submit to the Council.—Alderman Stretton said it was for the Council to make the final selection. Nos. 1 and 2 were put upon the plans by the order of the sub-committee specially appointed to report upon those designs. It now rested with the Council whether they would accept the report of the sub-committee.—Councillor Millican begged to move an amendment. He did not think it fair that the committee should have placed "first" and "second" upon the plans. He held a decided opinion himself as to the excellence of No. 26 over No. 23. The economy of the land was a most important consideration, and he maintained that the elevation of No. 26 was of far more sterling merit than that of No. 23, and he begged to move that No. 26 be awarded first place, and No. 23 second place.—Councillor Oliver seconded.—The amendment was rejected by 43 votes against 6 for it. The envelopes containing the names of the two successful competitors were then opened, and it was found that the first premium (25*l.*) had been gained by Mr. Thomas E. Lydiatt James, High-street, Clapham, London; and the second premium (15*l.*) by Mr. W. Ordish, Bank-buildings, Leicester.

ARCHÆOLOGICAL NOTES.

The Bristol and Gloucestershire Archæological Society having decided to visit Evesham during the coming summer, a preliminary meeting was held in the town-hall, Evesham, on the 24th ult., to form a local committee to arrange for their reception. Messrs. Herbert New and R. Fisher Tomes were appointed local secretaries, and a committee was elected.

Messrs. J. W. Trew & Sons, of Broad-street, Bristol, write to a Bristol paper to say that in taking down an old wall at 1, Stephen-street, in that city, some pieces of the mullion of a church window were found built into the wall. It is supposed they were removed from an old church formerly standing at the bottom of Small-street.

While excavating the other day for the foundations of an addition to the premises of Messrs. Baker & Sons, Redcliff-backs, the workmen of Messrs. Brock & Bruce, contractors, at about 25 ft. below the surface came upon some stonework, which bore the appearance (says the *Bristol Times*) of being the walls of an ancient dock. The enclosed space would about contain an 80-ton barge, and the masonry was of Brandon-hill stone, and put together without any mortar. What, perhaps, was of more interest still, in the earth at the bottom the workmen came upon an old coin, considerably encrusted with verdigris, and which for some time puzzled local antiquaries. The inscription has been deciphered by Colonel Bramble, who finds the coin to be one of the Roman Emperor Valerian, who reigned from A.D. 253 to 263. On the obverse is a radiated bearded head, looking to the right; and the inscription is "valerianus—p.f.—aug." On the reverse is a figure with short cloak over left shoulder, and a rayed or spiked crown, the right hand with long fingers extended, and the left hand holding a carved club, with narrow line behind; what can be deciphered of the inscription being "oriens aug. g." The coin is of silver, strongly alloyed with copper, and it is said to be quite unique in this part of the country.

CASE UNDER THE EMPLOYERS' LIABILITY ACT.

HUNT *v.* MONK.

This was a case under the Employers' Liability Act, and was tried in the Queen's Bench Division of the High Court of Justice on the 29th ult., before the Lord Chief Justice and Mr. Justice Watkin-Williams. It arose at Liverpool, the defendant being a contractor there employed to take down some buildings, which he was doing in the usual way, the plaintiff being in his employment and engaged on the work. He was filling his barrow with the rubbish he was removing, when a part of the wall being pulled down by other men engaged in the work fell upon him and injured him. He sued in the County Court, and there was no evidence that the process being used was wrong, or that any part of the plant, &c., was in an unfit state; but the plaintiff gave it as his opinion that a "derrick" ought to have been used, though he admitted that he had never known it used in such work. It was objected that

there was no evidence of any negligence to make the defendant liable, but the judge overruled the objection, and the plaintiff had a verdict for 57*l.* The defendant now appealed from that verdict.

The Court were clear that there was no evidence of any negligence to make the defendant liable, and so set aside the verdict.

MEETINGS.

SATURDAY, APRIL 5.

Building Exhibition, Agricultural Hall. (Last Day.) 10 to 10.

Architectural Association.—Visit to the Hampstead Congregational Church (Mr. A. Waterhouse, A.R.A., architect). 3 p.m.

Association of Public Sanitary Inspectors.—Mr. Rees on "The Public Health Act, 1875, from a Rural Inspector's Point of View." 6 p.m.

Royal Institution.—Captain Abney, R.E., F.R.S., on "Photographic Action considered as the Work of Radiation." (VI.) 3 p.m.

MONDAY, APRIL 7.

Society of Engineers.—Captain W. B. Barker, on "An International System of Marine Course Signalling." 7·30 p.m.

Victoria Institute.—Mr. J. Hassell on "Evolution by Natural Selection." 8 p.m.

TUESDAY, APRIL 8.

Institution of Civil Engineers.—Discussion on Mr. W. Foster's paper on "The Composition and Destructive Distillation of Coal." 8 p.m.

Miscellanea.

Gray's-Inn Library.—Owing to the present library accommodation at Gray's Inn being quite inadequate to receive the annual increment of books, the Benchers have decided to use a piece of land adjoining their present buildings, and fronting the Gray's Inn-road, by erecting thereon a new library with other offices, thus providing an additional space designed to contain some 11,000 volumes. The initial step in connexion with this enterprise was taken on the 29th ult., when the treasurer of the Inn, Mr. Arthur Collins, Q.C., laid the first stone of the new building, and it is intended that the work shall be completed by the end of the long vacation. In the new building there will be an entrance-hall, vestibule, and staircase approached from South-square, and forming a connecting block joining the present steward's offices and the existing libraries with the new portion fronting the Gray's Inn-road. The larger block contains, on the ground-floor, a suite of rooms to be let as chambers, and in the basement a series of strong rooms. The two principal façades, north and east, are to be constructed in red brick, with Portland stone bands, cornices, and strings. Five tall windows looking into the Gray's Inn-road will light the library, with a large projecting window at the north end. The portion of the new building fronting South-square will be constructed with Portland stone to harmonise with the present library, to which it may be regarded in the light of an addition. The works will be carried out by Messrs. Patman & Fotheringham, at a cost of over 7,000*l.* from the designs of Messrs. Isaacs & Florence, of Verulam-buildings, Gray's Inn,—Mr. L. H. Isaacs being the surveyor to the Society of Gray's Inn.

The New Constitutional Club Buildings. Workmen are at present engaged in excavating the foundations of buildings for the Constitutional Club, which are about to be erected in Northumberland-avenue, immediately adjoining the Grand Hotel. It will be the largest building of its kind in the metropolis, the main frontage being upwards of 200 ft. in length, and the extreme depth of the building to Northumberland-street more than 120 ft. It will have a bold and handsome elevation to the Avenue, and will be faced with Portland stone, which is one of the requirements of the Board of Works in respect of all the buildings erected in this thoroughfare. It will be carried to a height of about 80 ft., and contain, it is stated, seven floors, and about 700 reception and other rooms, in addition to a grand hall for public meetings of the members of the club and the Conservative party generally. Messrs. Lucas Bros. are the contractors for the preliminary work now in progress, and Mr. R. W. Edis, of Fitzroy-square, is the architect.—*Morning Post.*

A Grand Pier for Weston-super-Mare.—The Weston-super-Mare Grand Pier Bill has passed the Committee in the House of Lords. This Bill is promoted by a company which has been formed for the purpose of erecting a grand pier at Weston-super-Mare, so as to enable steamers to call there at any state of the tide. It will be 2,200 yards long, and, when completed, will be the longest pier in England.

"The Usual Thing" (?) in Speculative Building.—The *Liverpool Post* of Monday last reports the proceedings in connexion with the public examination in bankruptcy of Edwin Thomas Rawson, builder, New Brighton, which took place on Saturday, at the Birkenhead County Court, before Mr. Registrar Williams. The statement of affairs issued by the bankrupt shows the total liabilities to be 36,652*l.* 10s. 2d., of which, however, 31,360*l.* 3s. 2d. is returned as owing to fully-secured creditors. The bankrupt attributes his failure to the non-letting of property. In reply to questions put by the official receiver, the bankrupt stated that he commenced business as a builder at New Brighton in 1877, and had since been carrying on business there. His capital when he commenced was 1,400*l.*,—700*l.* in cash, and 700*l.* in three houses which he was building. During the seven years he had been in business his building transactions had amounted to over 61,000*l.*, 38,510*l.* 3s. 2d. of which consisted of property now in the hands of secured creditors. He considered 1,400*l.* a fair amount of capital for the magnitude of the transactions, and that any man who possessed that sum might safely plunge into transactions amounting to 61,000*l.* The following are some of the subsequent questions put by the official receiver and the bankrupt's answers thereto:—Is it safe to do so? It is not exactly safe, because neighbourhoods may change. Do you consider it prudent that a man with 1,400*l.* should carry on transactions to the extent of 61,000*l.*? It is speculating in building. Is that the usual amount of capital in such speculations? The usual thing is to have no capital at all. Then you are a little above the average; would you trust a man with any credit whom you knew to have only 1,400*l.*, and whom you knew to be involved to the extent of 61,000*l.* in buildings? Yes; I think that would be a fair margin of capital.

The Parkes Museum.—At the last meeting of the managing committee of the National Smoke Abatement Institution, Sir Frederick Pollock, bart., presiding, it was resolved to conclude an arrangement with the Parkes Museum for space to be provided in the Museum for a collection of heating, cooking, and smoke abating apparatus of various kinds, and intended for either domestic or industrial purposes. Ventilating apparatus combined with heating apparatus or otherwise, as well as fuel and gas burners, will be included in the collection. The heating apparatus will be selected with the special view of showing typical kinds of apparatus and illustrating systems of economising fuel and abating smoke. No charge will be made to the persons whose articles are exhibited. The public are admitted to this Museum free during a portion of every day. The library of the Museum, to which the public are admitted by a member's order, contains the illustrated and descriptive report of the tests of grates, stoves, and furnaces, made by the Smoke Abatement Committee, as well as a large and valuable collection of medical and sanitary reports, and other works of reference. Persons having specimens of apparatus, diagrams, model, statistical matter, or other articles suited to the collection, or new inventions which they desire to bring to the notice of the council, are requested to communicate with Mr. E. White Wallis, secretary to the National Smoke Abatement Institution, at the offices of the Institution, which are now to be removed to the Parkes Museum, 74A, Margaret-street, Regent-street, W.

The Smoke Nuisance Acts.—A return of fines inflicted in the metropolis, under the Smoke Nuisance Acts, from 1877 to 1881, has been issued, together with a letter addressed to the Home Secretary from the Council of the National Smoke Abatement Institution, complaining that the powers of the Acts are not enforced. The figures show that 607 prosecutions were commenced for improper construction, and 600 convictions followed; and there were 451 prosecutions for the negligent use of chimneys, and 436 convictions. Of these, in 776 cases, fines below the legal minimum of 40s. were inflicted; in 167 cases a fine of 40s. was inflicted; and in 193 cases fines above 40s. were imposed.—*Morning Advertiser.*

Strike of Stonemasons at Preston.—Fifty stonemasons in the employ of Messrs. Cooper & Sallis at the building of the Free Library and Museum are on strike against a reduction of their wages from 8½d. to 8d. per hour. The contractors have advertised for men on their terms, and the men on strike have warned their fellows not to come to Preston.

The Sunday Society.—The ninth annual meeting of the members of the Sunday Society was held at 9, Conduit-street, on Monday night. Professor W. H. Corfield, M.D., in the chair. The annual report, which was read by Mr. Mark H. Judge, honorary secretary, set forth the work of the society during the past year. It referred at considerable length to the action taken in the House of Lords, and pointed out that the policy embodied in the resolution proposed this year by Lord Thurlow at the request of the National Sunday League differed from that advocated by Lord Dunraven and other representatives of the Sunday Society in both Houses of Parliament, inasmuch as "the Sunday Socety had never seen its way either to ask for the opening of these institutions for a special class only, instead of for the whole community, or to seek to supersede the authority of the Trustees of the British Museum and those responsible for the management of other national museums and galleries under the jurisdiction of the President in Council, so far as the opening or closing of them on Sundays is concerned." Statistics of the Society's Sunday Art Exhibition were given. The report was adopted, and, on the proposal of Mr. Mark H. Judge, seconded by Mr. Charles H. Stanton, the Duke of Westminster was elected President of the Society.

Bridge Construction.—The seventh of a course of lectures on "General Engineering Construction," by Mr. J. W. Wilson, jun., vice-principal of the Crystal Palace School of Practical Engineering, was delivered on the evening of March 27th, in the reading-room of the Society of Engineers, Victoria-street, Westminster, Mr. A. T. Walmisley, member of the council, in the chair. The lecturer, in introducing his subject, pointed out into how many different parts it was capable of subdivision. He then spoke of the various materials in use for bridge construction, and went on to consider more particularly brick and stone bridgework; and, in connexion therewith, the nature of piers, abutments, and wing-walls, with their foundations; arrangements for roadway, centreing, &c. After this he spoke of the employment in arch form of cast and wrought iron work, and then proceeded to the consideration of girder bridge work of different kinds, showing the arrangement of plate, warren, lattice, and other types of construction. Proceeding to the details of girder-work, with cross girders, road bearers, suspension links, compression and tension bars, roller-plates and other accessories, the lecturer pointed out the improvements effected in modern work, both as regards design and manufacture.

The Achilles Statue.—In the House of Commons on Monday evening, Mr. J. W. Lowther asked the First Commissioner of Works whether he had taken any, and what, steps, since March 29, 1883, to arrest the decay, by corrosion, of the Achilles statue in Hyde-park, and, if not, whether he would explain the cause of the delay?—Mr. Shaw-Lefevre, in reply, said: I have had the Achilles statue carefully examined, and find that its defective state is due to the imperfect amalgamation of the metals in the original casting, which has led to serious corrosion. Before dealing with the matter, which may involve a very expensive process of repair, it is thought better to wait and see how far the flaws in the metal extend. At present there is no immediate danger to the statue.

International Health Exhibition.—A somewhat novel feature in connexion with the Exhibition this year will be the establishment of a library and reading-room, a home for which the Executive Council have assigned in a large double room in the Albert Hall, overlooking the conservatory. Steps have been taken to secure a representative collection of works on vital statistics, of reports and regulations relating to public health; of regulations with reference to injurious trades and of works thereon; and of reports, statistics, and other works on the science of education. Foreign powers have been invited to lend their co-operation in this effort to create an international library.

Autumn Exhibition of Architectural Drawings, Liverpool.—The curator of the Walker Art Gallery, instructed by the Arts Committee of the Corporation of Liverpool, has informed the Council of the R.I.B.A. that at the ensuing Autumn Exhibition, to inaugurate the extensions recently made in that gallery, architectural drawings will be exhibited in one of the rooms. Further information will be given on application to the Curator of the Walker Art Gallery, at Liverpool.

Bradford Technical College — The first annual meeting of the donors and subscribers to the Bradford Technical College was held on the 28th ult. under the presidency of Mr. Henry Mitchell. After referring to the satisfactory nature of the reports from the various departments of the College, the Chairman said the progress of the students was most gratifying. He knew that many of them were already occupying responsible positions in connexion with some of the most prominent manufacturing and other industries of the town, and he had many testimonies from their employers as to the value of the services these students had been enabled to render. He believed it would be necessary for all who undertook positions in connexion with the trade of the town, either as managers or principals, to go through a course of training in that College. The number of students was now over 800, and it was estimated that the fees in the different departments during the present year will amount to 1,718*l.* 15s., Government grants to 980*l.*, Clothworkers' Company's grant, 500*l.*; letting of the hall, 150*l.*; 1,000*l.* from the special subscriptions, besides ordinary subscriptions, the total of which was not yet known. The expenses were large, being about 4,100*l.* a year, according to the present estimate; but if extra subscriptions to the amount of 1,000*l.* were obtained the council would be able to meet them.

The Royal Society of Artists, Birmingham.—The private view of the Spring Exhibition of this Society took place on Thursday, the 3rd inst., and the exhibition was opened to the public on the 4th. The committee having decided to give additional space to oil paintings at the spring exhibitions, the walls of the Great Room are this year covered by a collection of works in that medium, the new gallery and some of the other rooms being devoted to water-colour drawings, whilst one room is given up to the exhibition of etchings and works in black and white.

Dairy Farm Buildings.—The ninth annual Dairy Show is announced to take place in October next. One of the sections will be devoted to models, plans, and drawings of dairy-farms, homesteads, silos, piggeries, poultry houses, &c. Competitors will be required to deliver their designs at the offices of the Dairy Farmers' Association, 191, Fleet-street, London, E.C., not later than September 10th. Special conditions with reference to this section will be framed, and will be obtainable upon application to the secretary.

Acton Drainage.—Mr. C. N. Lailey, surveyor to the Acton Local Board of Health, writes to say that the statement in an article on the above subject (pp. 403-4, *ante*) that "the local surveyor, under the guidance of Mr. Bailey Denton, was instructed to prepare a comprehensive scheme," is incorrect, and that the scheme was prepared by himself before Mr. Denton was called in.

Edinburgh Architectural Association.—A meeting of the association was to be held in the Professional Hall, 20, George-street, on Thursday evening, April 3rd, at half-past eight o'clock. A paper, by Mr. W. Scott Morton, on "Colour," was announced as the principal business for the evening.

London and Middlesex Archæological Society.—In consequence of the death of the Duke of Albany, the conversazione of this society, which was announced for 8 p.m. on Thursday, the 3rd of this month, is postponed to the same hour on Thursday, the 24th.

The Royal Gold Medal.—The recommendation that the Royal Gold Medal of the Institute of Architects for this year should be presented to Mr. Butterfield has received the formal sanction of Her Majesty.

TENDERS.

For the extension of premises, Chiswell-street, Camberwell, for Messrs. Carter, Paterson, & Co., under the superintendence of Mr. William Eve, 10, Union-court, Old Broad-street, E.C.:—

Hubble & Trott	£1,345 0 0
Harris & Wardrop	890 0 0
D. D. & A. Brown	880 0 0
Downs	839 0 0
Aldridge & Jenvey	820 0 0
Higgs	815 0 0

For the erection of four almshouses, Newbury, Berks. Mr. Henry Flint, architect, Newbury:—

S. Elliot	£876 0 0
Elms	840 10 0
Whiter	825 0 0
Bailey	805 16 6
Taylor	777 0 0
Botsford	769 0 0
James (accepted)	743 0 0
Harrison	690 0 0

For the erection and completion of two pairs of semi-detached villas, at Southgate, for Mrs. Caroline Deakin. Mr. Arthur W. Saville, architect, 99, Strand, W.C. Quantities supplied:—

Jerrard	£2,897 0 0
Cox	2,685 0 0
Newby	2,680 0 0
Smither	2,609 0 0
Anley	2,596 0 0
Shurmur	2,574 0 0
Cook	2,571 0 0
Spencer & Co.	2,485 0 0
Walker	2,432 0 0
Ward & Lamble	2,387 0 0
Howard	2,382 10 0
Lamble	2,267 0 0
Jackson & Todd	2,255 0 0
Royal (accepted)	2,076 0 0

For water-tower, Enfield, for the Enfield Local Board of Health. Mr. Ketteringham, surveyor:—

Patman, Enfield	£1,547 0 0
Gardener, Waltham	1,536 0 0
Burmen, Enfield	1,500 0 0
Cooke, Battersea	1,380 0 0
Fairhead, Enfield	1,286 0 0

For the erection of warehouses, offices, and lead-rolling mills at Canon's Marsh, Bristol, for Messrs. Rowe Bros. & Co. Mr. Herbert J. Jones, Wellington-chambers, Bridge-street, Bristol, architect:—

Eastabrook & Son	£4,294 0 0
R. J. Crocker	4,239 0 0
Walters & Son	4,175 0 0
Brock & Bruce	4,156 0 0
Stephens & Bastow	4,000 0 0
W. Church	3,994 0 0
J. E. Davis	3,984 0 0
G. Humphreys	3,977 0 0
E. & T. Hatherly	3,957 0 0
Howell & Son	3,900 0 0
Cowlin & Son	3,875 0 0
A. J. Bevan	3,800 0 0
T. R. Lewis (accepted)	3,795 0 0

All of Bristol.

For Dibden Hall, Loughton, for Mr. J. T. Palmer. Mr J. M. Knight, architect:—

W. Wood	£4,697 0 0
F. F. & J. Wood	1,683 0 0
J. Earle & Son	4,600 0 0
Egan	4,495 0 0
Magee	4,400 0 0
Ashby Bros.	4,322 0 0
Staines & Son	4 244 0 0
W. S. Joselyne	3,950 0 0

For the supply of 600 ft. of 18-inch cast-iron pipes for sewer outfall works, in 12 ft. lengths, and other iron work in connexion therewith, for the Bournemouth Improvement Commissioners. Mr. G. R. Andrews, surveyor:—

	£. s. d.	Amended Tenders. £. s. d.
A. Dodman, Westminster	385 0 0	—
Thomas Spittle, Newport, Mon.	361 5 0	481 13 4
Edwd. Howell, Poole	350 0 0	375 0 0
Wm. Haydon, Bournemouth	306 5 0	338 6 8
Jordan & Sons, Newport, Mon.	291 18 9	—
Macfarlane, Strang, & Co., London	291 12 0	349 12 6
The Thames Bank Iron Co., London	290 0 0	346 17 6
Firmstone & Co., near Stourbridge	287 10 0	383 0 0
J. & S. Roberts, West Bromwich	287 10 0	335 0 0
J. B. Guthrie, London,	275 0 0	325 0 0
The Stantion Iron Works Co., near Nottingham	269 11 8	337 10 0
Bayley, Mallett, & Co., London	269 7 6	325 0 0
Cochrane & Co., Dudley*	269 6 9	276 2 7
The Butterley Co., London	262 10 0	300 0 0
The Clay Cross Co., near Chesterfield	256 19 0	321 0 0
Wander, Walduck, & Davies	234 7 3	226 12 6

* Amended Tender accepted.

For the erection of three dwelling-houses and shops, Queen-street, Ramsgate. Mr. E. L. Elgar, architect:—

T. Elgar	£1,700 0 0
Smith & Son	1,389 0 0
H. Bowman	1,382 0 0
C. Home	1,299 0 0
H. Miller	1,230 0 0
White Bros.	1,558 0 0
J. Newby	1,148 10 0
W. Martin	1,100 0 0
W. H. Port	1,100 0 0
Newby Bros. (accepted)	969 10 0

For two houses at Stonebroom, near Alfreton, Derbyshire, for Mr. J. T. Harrison. Messrs. Rollinson & Son, Chesterfield, architects. The proprietor provides all bricks, lime, sand, stoves, and chimney-pieces:—

	Mason, Slater, and Plasterer.	Carpenter, Joiner, Plumber, and Glazier.
Fisher Bros., Mansfield	£440 0 0	£700 0 0
Thos. Gough, Chesterfield	372 0 0	—
C. W. Hays, Clay Cross	415 0 0	—
Jno. Roe, Alfreton*	370 0 0	—
Wm. Hall, Pilsley	—	660 0 0
E. Bansall, Clay Cross	—	629 0 0
Jno. Bird, Pinxton	379 12 0	612 11 0
Jas. Peach, Morton	393 0 0	—
Wilson & Wain, Pilsley	—	680 6 8
Geo. Wetton, Stonebroom*	—	612 18 6
Isaac Margereson, Barlow	360 0 0	—

* Accepted.

For the erection of new infants' school, boundary-walls, &c., at Even Swindon, Wilts, for the Rodbourne Cheney School Board. Mr. William Drew, architect, Swindon. Quantities by the architect:—

Phillips	£1,400 10 0
Barrett	1,182 9 3
Buckle & Wheeler	1,150 0 0
Wiltshire (accepted)	1,131 0 0

For alterations to the "White Horse" public-house, Shoreditch. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue, E.C. Quantities supplied:—

Hearle	£1,345 0 0
Shurmur	1,197 0 0
Drew & Cadman	1,180 0 0
J. & H. Mills	1,088 0 0
Staines	1,078 0 0

For schoolrooms, &c., at rear of Baptist Chapel, Catford Hill, S.E. Messrs. Wilson, Son, & Aldwinckle, architects, No. 2, East India-avenue, Leadenhall-street, E.C. Quantities supplied:—

		Additional Class-room.
Hobbs	£2,089	£506
Taylor & Son	1,972	207
J. & H. Mills	1,888	198
Amer	1,880	185
Nightingale	1,875	195
Cox	1,874	190
Shurmur	1,872	189
Higgs & Hill	1,860	200
Croaker	1,860	190
Jerrard	1,800	198
Holliday & Greenwood Loughborough Junction*	1,622	167
Brown (too late)	1,575	187

* Accepted.

For road and sewer, Battersea. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue, Leadenhall-street, E.C.:—

	Granite.	Macadam.
Cooke	£539 0 0	£329
Mowlem & Co.	525 0 0	338
Wheeler & Hindle	473 17 5	341

For the erection of a villa at corner of West-hill-road and Lebanon-gardens, Wandsworth, for Mr. T. S. Howell. Messrs. Ebbetts & Cobb, architects, 115, Strand. Quantities supplied by Mr. T. E. Mundy, 12, Buckingham-street, Strand:—

R. Perkins	£1,948 0 0
F. Sanders	1,932 0 0
Macey & Sons	1,777 0 0
H. Harmer	1,764 0 0
W. Holt	1,725 0 0
Steel Bros.	1,690 0 0
H. Baylis	1,596 0 0

For new organ-chamber and vestry to Christ Church, Folkestone. Mr. A. R. Barker, architect. Quantities by Messrs. J. S. Lee & Son:—

W. J. Wiles, Dover	£2,130 0 0
W. A. Goss, Torquay	2,036 2 2
R. Webster, Folkestone	1,884 0 0
G. Prebble, Folkestone	1,862 0 0
Hayward & Paramor, Folkestone	1,858 0 0
H. Unwin, Folkestone	1,832 7 0
J. Q. Petts & Son, Folkestone	1,806 0 0
J. Dunk, Folkestone	1,790 0 0
W. Brooks, Folkestone	1,656 0 0
H. M. Moody, Folkestone (accepted)	1,530 0 0

For alterations and additions to Westbrook House, near Horsham, and erection of new lodge. Messrs. William Wallace & Flockhart, Bond street, architects. Quantities supplied by Mr. Frederick Thomson:—

Potter & Sons, Horsham	£2,670 0 0
Goddard & Sons, Dorking	2,520 0 0
Colls & Sons, Dorking and London	2,424 0 0
Robertson, London	2,420 0 0
Richardson & Sons, Horsham	2,346 0 0
Peters, Horsham	2,169 10 0
Toms, London	2,083 0 0
Charlwood Bros., East Grinstead	2,052 0 0

For alterations to Nos. 3, 4, 5, & 6, Wilton-road Pimlico, for the Aërated Bread Company, Limited. Mr George Edwards, architect. Quantities by Mr. H. Lovegrove:—

Green	£1,698 0 0
Reading	1,588 0 0
Nightingale	1,580 0 0
Scrivener & Co.	1,459 0 0
Martin, Wells, & Co.	1,360 0 0
Scharien & Williams	1,280 0 0
Stimpson & Co. (accepted)	1,280 0 0

For the erection of shops at Crouch End. Mr. W. Smith, architect:—

Anley	£1,184 0 0
W. Shurmur	1,125 0 0
Clark Bros.	1,112 0 0
Hurst	1,105 0 0
Ebbage	1,079 0 0
Dunford & Langham	1,049 0 0
Johnson	1,045 0 0
Larke	969 0 0
Mattock Bros.	952 0 0
J. Harper	941 0 0
Stevens	923 0 0
B. T. Wood	865 0 0

For alterations and additions to schools at Derby-road, Hasland, near Chesterfield, Derbyshire, for the Hasland School Board. Messrs. S. Rollinson & Son, architects. Quantities supplied:—

James Hoole	£903 15 0
Edward Heath	900 4 8
Charles Marsden	891 14 0
Eustace Tinkler	792 0 0
Amy Wright	754 9 0
Isaac Margereson	731 0 0
Richd. Langley	720 0 0
Chas. Rollinson	720 0 0
Fras. Glossop	665 0 0
Thos. Gough, Chesterfield (accepted)	651 9 0

For alterations and additions to the Eagle Tavern, Chobham-road, Stratford, for Mr. J. J. Simmons. Mr. Frederick. A. Ashton, architect:—

Hearle & Son	£579 0 0
North Bros.	540 0 0
A. Nicholls	505 0 0
R. Toole	425 0 0
J. J. Furlong (accepted)	399 15 0
C. Mansfield	385 0 0
W. Buckle	363 10 0
J. Webb	345 0 0
J. Young	305 0 0

For detached residence at West Hampstead, for Mr. J. Gibson. Mr. Banister Fletcher, architect:—

J. Mansbridge (accepted)	£2,776 0 0

For the erection of Orphanage and Hostel at Lewisham, for All Saints' Sisterhood, Margaret-street, W. Mr. E. L. Swatman, architect, 38, Parliament-street, Westminster:

S. J. Jerrard (accepted)	£10,189 13 7

[No competition.]

For the erection of a house, shop, and stabling, at Eastbourne. Mr. J. Barsley, architect and surveyor, 33, Gildridge-road, Eastbourne. Quantities by Mr. E. Young:—

Cornwell & Son	£1,365	0	0
J. Martin	1,350	0	0
Rogers & Hubard	1,295	0	0
M. Martin	1,275	0	0
W. Backhurst	1,270	0	0
Dore & Sons	1,243	0	0
B. Stevens	1,230	0	0
J. Hurst (accepted)	1,173	0	0

For alterations and additions to villa at Upperton, Eastbourne. Mr. J. Barsley, architect, Eastbourne:—

Dore & Sons	£390	0	0
J. Martin	390	0	0
Cornwell & Son	350	0	0
M. Martin	338	0	0
B. Stevens (accepted)	287	0	0

For the erection of two semi-detached villas, Eastbourne. Mr. J. Barsley, architect, Eastbourne:—

C. Wren (accepted)	£3,200	0	0

For new approach-roadway in connexion with Hospital for Infectious Diseases, Woodbridge, near Guildford. Messrs. Peak, Lunn, & Peak, surveyors. Quantities supplied:—

Joseph Shelley, Woodbridge	£923	8	11
J. & C. Mitchell, Woodbridge	763	9	11
W. Hebburn & Sons, Worplesden	719	10	0
Geo. Garnett, Guildford	630	0	0
T. B. Hayter, Portsmouth	552	0	0
Martin, Wells, & Co., Aldershot	475	16	0
John Bottrill, Reading	435	0	0
Frayne & Co., Birmingham	342	9	9

For pair of cottages, Eastbury Manor, Compton, Surrey, for Miss Hagart. Messrs. Peak, Lunn, & Peak, architects, Guildford:—

Geo. Strudwick, Guildford	£530	0	0
Mitchell Bros., Shalford	497	0	0
Geo. Horn, Godalming	492	7	6
H. Pink, Milford*	487	10	0

* Modified to £475 10s., and accepted.

For detached cottage, Stoughton Park Estate, near Guildford. Messrs. Peak, Lunn, & Peak, architects, Guildford:—

Bellimore & Smith, Guildford	£395	0	0
S. Sayers, Stoughton	312	5	0
G. & R. Smith, Guildford	300	0	0
E. Elliott, Guildford	285	0	0
Henry Lunn, Guildford (accepted)	282	14	6

For additions and alterations to Tilehurst Board Schools, near Reading. Mr. F. W. Albury, architect, Reading:—

Geo. Wernham, Reading (accepted)	£1,760	0	0

Accepted for new business premises, Broad-street, Reading, for Messrs. Heelas, Sons, & Co. Messrs. Brown & Albury, architects, Reading:—

T. H. Kingerlee, Banbury (general works)	£2,400	0	0
Tamar Terra-cotta Co. (terra-cotta)	250	0	0

For iron railing to enclose the Catholic Cathedral, Bishop's house, and seminary, Portsmouth, for Bishop Virtue. Mr. Joseph Stanislaus Hansom, F.R.I.B.A., 27, Alfred-place West, South Kensington, architect:—

Goddard & Massey, Nottingham (accepted)	£248	17	0

For Lady Altar in the Catholic Church, Norton-road, West Brighton, for the Rev. S. A. Donnelly. Mr. Joseph Stanislaus Hansom, architect:—

George Porter, Chelsea (accepted)	£145	0	0

For making up road, Cambridge-gardens, Nottinghill:—

Stockwell	£494	7	0
Mears	337	0	0
Hare	335	0	0
Rogers & Dickens	333	0	0
Felton	326	0	0
Nowell & Robson	315	0	0

For alterations and additions to Nos. 1 and 2, Crawfurd-street, W., for Mr. Lewis Davis. Mr. W. B. May, architect, 31, Manchester-street, W.:—

Simpson	£819	0	0
Langridge	777	0	0
D. D. & A. Brown (accepted)	735	0	0

For fittings and decorations, "The Fleece" Inn, High-street, Canterbury, for the Star Brewery. Mr. Fred. M. Putley, architect:—

John Warne (accepted)	£553	2	0

For the erection of "Ennerdale," Sutton, Surrey, for Mr. Mark Leader. Mr. Herbert D. Appleton, architect, No. 157, Wool Exchange, E.C. Quantities by Mr. F. T. W. Miller, Guildhall-chambers, E.C.:—

A. Newland	£1,195	0	0
W. Robinson	1,115	0	0
W. C. Hards	1,086	0	0
W. Smith	1,077	0	0
R. J. Humphris	1,010	0	0
G. Hards	995	15	0
J. B. Potter (accepted)	970	0	0

For house at Bromley, Kent, for Mr. W. J. Nichols. Mr. George Lethbridge, architect. Quantities supplied by Mr. Charles H. Goode:—

Lowe	£2,521	0	0
Punnett & Son	2,519	0	0
Armand	2,414	0	0
Adcock	2,399	0	0
Syme & Duncan	2,390	0	0
Scott	2,344	0	0
Harris & Wardrop (accepted)	2,294	0	0

For the erection of the first portion of St. Cuthbert's Church, Kensington, and alterations and additions to the temporary church. Mr. Hugh Roumieu Gough, architect, 12, Carlton-chambers, Regent-street, S.W.:—

Belham & Co. (accepted)	£2,936	11	3

For addition to British School, Croydon. Mr. Robt. Ridge, architect:—

Marriage, Croydon*	£233	0	0
Legg, Croydon	230	0	0
Bullock, Croydon	227	0	0

* Accepted.

For alterations and additions to No. 3, Samuel-street, Woolwich, for Vicarage for the parish of St. Michael and All Angels, Woolwich. Mr. H. H. Church, architect, Woolwich:—

Fenn & Sons, Woolwich	£600	0	0
Coombs, Plumstead (accepted)	550	0	0

For a house on the Cedars Park Estate, Walthamstow, for Mr. Sandell. Mr. S. L. Walters, Black's-place, architect:—

Barton	£819	0	0
Sampson	612	0	0
Goldsworthy & Rickard	576	0	0
Barkel (accepted)	576	0	0

Special Notice.—Lists of tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, Strand, W.C., not later than four p.m. on Thursdays.

TO CORRESPONDENTS.

H. H.—J. M'C.—Rev. H. W.—A.R.I.B.A. (next week).—F. E. (we have not space to continue the correspondence).—S. Y.—B. I.—B. F. (next week).—F. S. (there is not the slightest chance that any of the suggestions you make would be adopted).—R. S. T. (cannot say at present).—G. H. B. (next week).

Correspondents should address the Editor, and *not* the Publisher, except in cases of business.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

PUBLISHER'S NOTICES.

GOOD FRIDAY.—"THE BUILDER" for Next Week will be issued on THURSDAY, the 10th inst. Advertisements for insertion in that issue must therefore reach the Office before THREE p.m. on WEDNESDAY, the 9th. Alterations in Standing Advertisements, or ORDERS TO DISCONTINUE the same, must be at the Office by TEN o'clock on TUESDAY Morning.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office, 46, Catherine-street, Covent-garden, W.C. free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, PREPAID. To countries within the Postal Union, 26s. per annum. Remittances payable to DOUGLAS FOURDRINIER, Publisher, 46, Catherine-street, W.C.

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE, AND GENERAL ADVERTISEMENTS.
Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.
Terms for Series of Trade Advertisements, also for Special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c. may be obtained on application to the Publisher.

SITUATIONS WANTED.
FOUR Lines (about THIRTY words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to
DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on WEDNESDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down.
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

Box Ground Stone
Is the Best for Use in all Exposed Positions, being a well-known and tried Weather Stone.
50,000 feet cube in stock.
PICTOR & SONS, BOX, WILTS.
[ADVT.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK, Norton-sub-Hamdon, Ilminster, Somerset. — Agent, Mr. E. WILLIAMS, 73, Charlotte-street, Portland-place, W. [ADVT.

Doulting Freestone,
HAM HILL STONE,
BLUE LIAS LIME
(Ground or Lump),
Of best quality, supplied from their own Quarries and Kilns by STAPLE & HANN, Stoke, Ilminster. Agent, Mr. H. MITCHELL, 5, Augustus-road, Hammersmith, London, W. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

MICHELMORE & REAP,
Manufacturers of
CHARLES COLLINGE'S PATENT.
COLLINGE'S PATENT HINGES,
LEVER, SCREW, & BARREL BOLTS,
Self-Acting "FALL DOWN" GATE STOPS,
and IMPROVED GATE FITTINGS of every Description
36A, BOROUGH ROAD,
LONDON, S.E.
DISCOUNT TO BUILDERS.

BRABY'S PATENT GLAZING

GLASS SET FREE,
ALLOWING EXPANSION AND CONTRACTION, AND PRECLUDING BREAKAGE.
ABSOLUTELY WATERTIGHT. PAINTING AND PUTTY SUPERSEDED.
OVER ONE MILLION FEET FIXED.
DRAWINGS AND PRICES ON APPLICATION.
— MODELS AND SECTIONS ON VIEW. —

LONDON: 356 to 362, EUSTON ROAD.
LIVERPOOL: 6 and 8, HATTON GARDEN.
GLASGOW: 335, ARGYLE STREET.